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PRINCIPLES OF IMPROVING DOMESTIC ANIMALS.

CHAPTER I.

In applying the general principles of physiology to the improvement of animals for the use of man, we shall confine our remarks mainly to the practices of *Breeding*, *Rearing*, and *Feeding*. A volume might be written on *breeds* and *breeding*, without exhausting the subject. Did time and space permit, it might be instructive to review the principles of Zoology, so far as to indicate the classes, orders, genera, and species of such animals as are domesticated in this country, and point out the special advantages of each. But this kind of information is less important to farmers (for whose perusal this essay is written) than a knowledge of the origin of breeds, and of the true principles of breeding. In the ox family, particularly in Great Britain, the improvement of breeds, and high breeding, have been carried farther than in any other nation. The *Bovidæ* divide themselves into three groups, namely: the *Bisontine*, the *Buraline*, and the *Taurine*. The bison is seldom domesticated in the United States; although one variety (the buffalo of the western plains,) might easily be propagated to any desirable extent. The Water-Ox, introduced recently into South Carolina, by Dr. Davis, is probably the only specimen of the *Buraline* group in this country. The *Bos Taurus* is the common domesticated ox, of which there are many varieties and distinct breeds, and their crosses. Naturalists are not agreed as to the fact whether our domestic groups sprang originally from different species, or from one species, ascribing, on the latter supposition, all changes in form and anatomical structure to the influence of changes of climate, of food, and to cross-breeding and breeding in line. Some difficulty exists in fixing the exact limits of species; what one would designate as a *variety only*, another would characterize as of a *different species*. This is a matter of some importance in breeding, for a *hybrid* formed by pairing animals belonging to different species, like the ass and the horse, has different constitutional powers and functions from either of its parents. Both in a physiological and economical point of view, *hybridizing* is a very different process from that of *cross-breeding*. The latter is a cross between varieties only; the former is a cross between distinct species. Like the common mule, hybrids are rarely fertile. Cross-breeds are not less so than their parents. Hence it is not difficult to form a new breed of cattle, sheep, hogs, horses, or dogs; nor to account for the hundreds that already exist.

The most common error in the propagation of animals is that of attempting to increase their size, instead of trying to improve their form. Beasts of a preternatural growth are extremely prone to deformity, either in carcass, limbs, or head. If not monsters in fact, they approach monstrosity in development and predisposition. Nature begins to disown them for their departure from her most salutary laws; and their constitutions are too artificial to endure hardships with impunity. Animals of a medium size are the most perfect in their anatomical organization, and therefore the most vigorous and healthy. By

the improvement of a breed is to be understood the producing of such a change in the shape and functions of an animal as shall render it better fitted to perform the labors of the yoke, saddle, or harness; better adapted for becoming fat; or for producing wool, milk, flesh, eggs, or feathers. The desired alterations are sought by the wise selection of parents. In this consists *skill* in breeding; while the practice of the most successful breeders has mostly run into three well-defined channels.

1st. That of breeding from individuals of the same parentage, called *in-and-in breeding*.

2d. That of breeding from offspring of different *varieties*, called *cross-breeding*.

3d. That of breeding from animals of different parentage, but of the same *variety*, called *breeding in the line*, or the same race.

Much has been written on each of these systems by their respective advocates; and under certain circumstances, each doubtless has some advantages. In theory, in-and-in breeding appears very objectionable; but when reduced to practice, the most successful breeders in England have found it to answer their highest expectations. "To obtain the most perfect form, the two modes of breeding most resorted to," remarks Dr. CLINE, "are crossing, and in-and-in. The latter may be the better when a particular variety approaches perfection in form; especially for those who may not be acquainted with the principles on which improvement depends. When the male is much larger than the female, the offspring is generally of an imperfect form. If the female be proportionably larger than the male, the offspring is of an improved form. For instance, if a well-formed large ram be put to ewes proportionally smaller, the lambs will not be so well shaped as their parents; but if a smaller ram be put to larger ewes, the lambs will be of an improved form. The proper method of improving the form of animals consists in selecting a well-formed female proportionably larger than the male. The improvement depends on this principle, that the power of the female to supply her offspring with nourishment is in proportion to her size, and to the power of nourishing herself by the excellence of her constitution. The size of the fœtus is generally in proportion of that of the male parent; and therefore when the female parent is disproportionably small, the quantity of nourishment is deficient, and her offspring has all the disproportions of a starveling. But when the female, from her size and good constition, is more than adequate to the nourishment of a fœtus of a male smaller than herself, the growth must be proportionably greater. The large female has also a larger quantity of milk, and her offspring is more abundantly supplied with nourishment after its birth."

Conceding the correctness of the above statement that the offspring naturally takes its size from the male parent, we can understand why the calves gotten by the large Durham bulls, imported from England and crossed on our comparatively small native cows, have uniformly disappointed the expectations of stock-growers. Many thousands of dollars have been thrown away in unscientific attempts of this character to improve the neat cattle of the United States. By importing large, well-formed cows of vigorous constitutions, at an early age, and pairing them with the best native bulls, a cross would be obtained through the infusion of foreign blood, superior for this country, with its peculiar climate, soil, pasturage, and markets, to the highest bred families in Great Britain. For England, mammoth cattle may be the most profitable; but for this country, they are not to be commended. Such is the plasticity of animal vitality, that beasts soon adapt themselves in size to the peculiar circumstances that surround them. Shetland ponies are exceedingly small because their supply of food has for ages been scanty. It is not in nature that a starved pig should make a large hog. Generous feeding and nourishment from conception to full maturity tends at all times to the symmetrical development and perfection of the animal. On the contrary, nature abhors hunger, thirst, and ill-usage in every form. Feed a calf, colt, lamb, or pig on food which is defective in nutritive elements, but abundant in quantity, and you will soon produce a pot-bellied, and otherwise defective animal. Its stomach and intestines are necessarily preternaturally distended to contain food enough for its bare subsistence; and when it comes to the end of its unnatural growth, the proportion of abdominal viscera and other offal, as compared with the more valuable parts, will be found in great excess. With bad keeping, it is impossible to prevent rapid deterioration; and it is mainly because the millions of husbandmen pay insufficient attention to the daily nourishment of their live stock, that so little improvement is witnessed. It matters not whether one breeds in-and-in, cross-breeds, or breeds in the line, the principle of good keeping applies equally to every system. The maxim, that offspring resembles its parents, or that "like produces like," is only true under *like* circumstances. Animals taken from one district or country into another, and subjected to new conditions, will obey all the laws of these new conditions, and gradually disobey all those

of the past. As this principle of adaptation is truly important, and not sufficiently studied, we shall venture to designate it by the terms, the Law of Circumstances. All living things being exposed to disease, and the subjects of death and dissolution, life itself is the creature of circumstances. The farmer who will make the circumstances which surround his domestic animals most favorable to their natural wants, can hardly fail to develope their highest constitutional powers. A vitiated public taste, and the markets, may demand that slaughtered animals be excessively fat; but all experience goes to prove that unnatural fatness either in a male or female, impairs its value for breeding purposes. After consulting all the best authorities on the subject, we are constrained to say that the evils of breeding in-and-in, or with animals of nearer kin, have been greatly magnified. Mr. Low, late Professor of Agriculture, in the University of Edinburgh, in his valuable treatise on the "Domesticated Animals of the British Islands," thus states the common belief on this subject:

"The nearer animals are allied in blood, the more quickly is the similarity of characters distinctive of the breed acquired. In the practice of English breeders, it has not been uncommon to unite brothers with sisters, and parents with their direct progeny, and to carry on this system for a long period. The physiological effect is remarkable, not only producing more quickly that community of characters which constitutes a breed, but affecting the temperament and constitution of the animals. Under this system, long continued, animals manifest symptoms of degeneracy, as if a violence had been done to their natural instincts. They become, as it were, sooner old; the males lose their virile aspect, and become at length incapable of propagating their race, and the females lose the power of secreting milk in sufficient quantity to nourish their young. These effects may not for a time be very observable, but by carrying on the system sufficiently far, they never fail to manifest themselves. Dogs continually reproduced from the same litter, exhibit, after a time, the aspect of feebleness and degeneracy. The hair becomes scanty, or falls off, the size diminishes, the limbs become slender, the eyes sunk, and all the characters of early age present themselves. Hogs have been made the subjects of similar experiments. After a few generations, the victims manifest the change induced in the system They become of diminished size, the bristles are changed into hair, the limbs become feeble and short, the litters diminish in frequency and in the number of the young produced, the mother becomes unable to nourish them, and if the experiment be carried as far as the case will allow, the feeble and frequently monstrous offspring will be incapable of being reared up, and thus the miserable race will utterly perish."

A fair interpretation of the words in-and-in breeding, does not require the perpetual pairing of brothers and sisters, nor of parents and offspring. As families extend, cousins of the first, second, and third degree of consanguinity are soon called into existence, with their peculiar constitutional developments and anatomical variations. Although descended from the same parentage, their blood becomes less and less identical with each generation through which it passes and thereby affords every facility for gradually changing the practice of in-and-in breeding to propagating *in the line*, without vitiating the purity of the blood. When one has a male and female more perfect in form than any other of the same species within his reach, the fact of their being either brother and sister, or parent and offspring, does not justify the refusal to unite the good qualities of both by breeding them together. To refuse to do so, and couple each with an animal decidedly inferior, would be breeding downward instead of upward. BAKEWELL's rule was to select at all times the parents that pleased him best, regardless of consanguinity; and no other improver of stock has had greater success.

Cross-breeding, in the opinion of many, has been productive of more harm than good; because in a large majority of cases it has been unwisely practiced. Defects in all breeds seem to be brought out with peculiar intensity when any one is forced out of its natural line of descent, and made to mingle its blood with that of another. The greater the difference between the two breeds, the more likely is the progeny to be deformed, or defective in some or many points. With few exceptions, the best results have been attained by keeping all breeds distinct, and skilfully selecting both males and females in each for the improvement of the race. In this way, all confusion of breeds is happily avoided, while the excellencies of each have every possible chance for perfect development. In speaking of the Gallaway breed of cattle, so famous in Scotland, Prof. Low says: "Efforts have, from time to time, been made to cross the breed by the Dishly long-horns, the Ayrshire, and the modern Short-Horns. These attempts, it is believed, have all been failures, in so far as they were intended to improve the general breed of the country; and modern breeders, with better knowledge, have turned their attention to the improvement of the existing race."

Scotch graziers and farmers are second to those of no other country in intelligence and industry; and their abandonment of cross-breeding may be regarded as additional evidence of their good sense and skill as practical husbandmen. In localities adapted to the Short-Horns, the Hereford, the Devons, or the Ayrshires, there can be no objection to the introduction of either of these popular breeds, and to a limited extent, crossing it with the native cattle of the district; but this course should never prevent the keeping of the new blood pure in the country. In this way, the imported stock may soon become perfectly acclimated, and whatever merits it may have in form, in early maturity, or disposition to fatten will be preserved without deterioration, provided always, it is properly kept. Perhaps the most valuable cow on the British Islands for milk is the Jersey breed. So early as 1789, the insular legislature pass an act, which is still in force, "prohibiting the importation into Jersey of any cow, heifer, calf, or bull, under the penalty of 200 livres, with forfeiture of the boat and tackle; and a further penalty of 50 livres is imposed on any sailor on board who does not inform of the attempt. The animal itself is to be immediately slaughtered, and its flesh given to the poor."

The breeding of dairy cows for exportation, has long been a profitable business for these islanders. A Jersey-man, it is said, will treat every animal on his farm with neglect except his cow. She is penned on a narrow space, and shifted to fresh spots of herbage several times in a day, and in the nights of winter she is warmly housed, and when about to calve, is nourished with cider. Throughout all the year these little pet cows are to be seen in their patches of meadow, often under the shade of apple trees, but so fastened that they cannot raise their heads to pull the fruit.

With proper care and attention, and breeding in a direct line, it is not difficult to form a distinct breed of domestic animals, and one that possesses many valuable qualities. There are, in the United States, the *nuclei* of at least a score of breeds of neat cattle, which might be extended and cultivated with equal profit to the owners, and benefit to the community. Native cattle, having been reared in the districts where they exist, and perfectly naturalized to their respective climates, soils, and means of subsistence, are very favorably situated for valuable improvement. To effect this, a knowledge of what are termed "*points*" of excellence in cattle, is indispensable. In the State of New York, where stock-growing and dairy husbandry have long been prosecuted on a somewhat extensive scale, and with great success, much attention has been given to the investigation of this subject, under the auspices of its very flourishing State Agricultural Society; and we can hardly render the husbandmen of the other States a better service than to copy at length from the thirteenth volume of the Transactions of said society, the "points of excellence in cattle," established for the guidance of its committees, in awarding annual premiums.

HEALTH AND ITS PRESERVATION.

Much has been said and written of late upon the subject of health, and but few of our readers, we presume, are ignorant of the necessity of a timely removal of all causes of disease, such as decaying and decayed substances, whether animal or vegetable, from their premises and the importance of cleanliness in person and apparel.

Yet such is the indifference of many who know the right, and yet practice it not, that line upon line and precept upon precept are as necessary in their case as in the education of children of smaller growth. Accurate medical researches have conclusively shown that heat and moisture, with defective ventilation are prolific sources of disease among us. But heat and moisture alone are not of themselves predisposing and effective causes, unless others act in conjunction with them.

We were much interested a short time since in perusing an account of an expedition of discovery up one of the branches of the Niger, into the heart of the African continent. Previous to the return of the expedition alluded to, we have no account of any previous expedition that has returned to the sea-coast without the loss of one-half, or nearly the whole of their number by diseases peculiar to the climate, yet of the sixty and more individuals comprising the expedition, all returned in comparative health, after an absence of eight months.

Such a remarkable exemption from disease deserves more than a passing notice. The means resorted to as preventives, were as follows:

1st. Thorough cleanliness in persons and apparel.

2d. The decks and cabin floors were scrubbed and rubbed with hot dry sand, and in damp wet weather, fires were daily kindled in the hold, in order thoroughly to dry the vessel and ensure ventilation.

3d. Chlorides, both of lime and zinc, were freely used in all parts of the vessel, and the bilge water daily removed.

4th. The men were not allowed to expose themselves to the morning air, without having first taken

a cup of strong coffee or chocolate, as a preventive of the faintness and exhaustion often felt when first arising from one's bed, during the hot season, and the European members of the company took, every few days, a grain or so of quinine as a preventive of malarial fevers.

Now although it may not be necessary to observe the same care and precautions to avoid disease in most parts of our own favored country, yet how many are content to wear and sleep in the same clothing, drenched with fœtid perspiration, and the excretions given off by the cutaneous surface, day after day, and we may say week after week.

We know that in hot weather the skin is excited to an unwonted activity, and performs the offices in part which belong to other organs in colder seasons. Now while the skin is thus affected by the stimulus of heat, let there be a failure in its functions, and disease at once follows. In fevers, how anxiously is the moisture of the surface looked for which shows that the skin is resuming its own peculiar functions.

From our own experience, we believe that many cases of fever might be prevented or much relieved if thorough ablution in either hot or cold water, as may be most agreeable to the feelings of the patient, were freely practiced and resorted to whenever symptoms should indicate.

Last season, in our own family, a child of two years of age was affected with whooping cough and infantile remittent fever. Medicines seemed to have but little effect on the chills and fever. The experiment was tried every morning of putting the feet in tepid or warm water, and freely sponging the surface of the body with the same until the tranquil repose of the little invalid showed its beneficial effect. We are not a believer in any *pathy*, or particular system of medication, to the exclusion of all others, but pure water has virtues of its own which many have yet to avail themselves of.

In this connection we may advert to advice often given to invalids to arise early in the morning and take a walk before breakfast. Such advice may do well enough for indolence, but we are quite sure, it is not of general application. Nature, as illustrated by the instinctive acts of the brute creaiton, directs us to partake of food immediately upon arising, and the practice so generally adopted in all warm climates of taking a cup of some refreshing beverage as soon as up, has been found by careful experiment eminently conducive to health.

We have seen many in their anxiety to secure in good condition the various products of the harvest field, arise at early dawn, and boast of having done nearly half a day's work before breakfast; yet we have noticed in repeated instances that such untimely labor was followed by attacks of disease of protracted duration. We know that during the summer season there is no respite from labor to the husbandman, but health is a greater blessing than wealth, and do not in the effort to secure the latter, irretrievably derange the former.

It is known that the use of chlorine in the various forms of chloride of lime, chloride of zinc, or of disinfecting solutions, is well tested as a means of removing noxious effluvia, but we apprehend that there are many, very many, who, knowing its value and utility, do not provide themselves with it as an indispensible requisite in housekeeping. Such is the affinity of chlorine for hydrogen, that prussic acid, one of the most deadly and quickly fatal poisons known, is instantly decomposed and rendered harmless, and sewers and sources of pestilential infections are immediately rendered comparatively innocuous; we say comparatively, because as long as the cause of malaria exists, so long is there danger.

A striking instance of its utility in preventing fevers was furnished by the fact, that all the operatives resident and near the factories of Belfast, where vast quantities of this gas are employed in the operation of bleaching, were exempt from the fevers that desolated Ireland from the year 1816 to 1820.

In Johnson's Medical Review for 1828, is an account of its use on board the Windsor Castle, East Indiaman, at the mouth of the Ganges.

During their stay, they regularly sprinkled the gun deck with solution of chloride of lime. The consequence was a comparative immunity from cholera, which was raging fearfully and fatally in other ships. In China, too, they escaped the dysentery, which prevailed on the river Tigris at the time.

You may inoculate a person with matter from a virulent case of small pox, and binding a compress of linen or cotton cloth moistened with chlorine liquid, the morbific matter will certainly be destroyed. We might give instances at length of its efficacy in specific diseases, but the above are sufficient.

In conclusion, we would suggest an experiment which will cost but little, and may prove of great value. In some portions of our country, dysentery and typhoid fevers are almost certainly prevalent towards the close of the warm season. In such localities, we would use freely the chlorides, and so freely that at no time during the season should its peculiar smell be absent from our apartments, accompanied

as its use must always be with free ventilation, and unless we greatly misapprehend its remedial virtues, there will be found a striking illustration of its power to protect from malarial exhalations.

HOW SHALL WE IMPROVE OUR AGRICULTURE?

Not a few of the soundest intellects of the age are engaged in the earnest consideration of the above question. It is indeed second to no other in general and vital importance. Anxious that our Northern friends and readers shall co-operate with those of the South, or at least keep pace with them in Agricultural progress, we publish in the Farmer the following letter from Dr. Gordon, a distinguished Tennessee farmer, who, with other friends of Agriculture in that State, have caused the Legislature to establish an Agricultural Bureau at the seat of Government, and organize the whole commonwealth into districts for the collection and diffusion of rural knowledge. It will be seen by what follows that Dr. G. contemplates making the policy of "reform and improvement in Agriculture," including as it must to be effectual, Agricultural Education, a political question before the people. Ultimately, such an issue will be made, and from *necessity*, if not from choice. Six years ago, when the writer took charge of the Agricultural Department of the U. S. Patent Office, Congress appropriated only $3,500 a year to meet all the ordinary and extraordinary expense of said department; now it is constrained by public opinion to give some $40,000 a year for the same purposes, and to print 250,000 copies of its Annual Reports. We contend that this nation of farmers and mechanics greatly needs an Industrial University in the District of Columbia, for the more thorough cultivation of those sciences and arts which operate so powerfully to purify and elevate all that is noble in humanity. Many believe the liberal bequest of Smithson does not now attain the objects of the donor; and we trust that those of Maclure, elsewhere noticed in this paper, will be more successful.

Sugartree Farm, (near Rome,)
Smith Co., Tenn., May 25, 1855.

Dear Sir:—Permit me to return my thanks for your response in the *Cultivator*, to my letter in reference to Geological Text Books. I now write for two objects, which will be briefly stated.

I am solicitous to procure the Agricultural history of Europe—particularly its present state—the causes which have improved it—specific aids of government—how many schools of Agriculture exist in each dominion—their character—how many are supported by government, and at what expense—what public agents and officers each employs in agriculture—their duties and salaries—all other government facilities afforded to agriculture, manufactures, and the mechanic arts. I wish to get such books as will give all this information. I have just read with pleasure and profit Coleman's travels in Europe, but his book gives none of the information in regard to government aid except in France. Just at this time we need such information in Tennessee, and I must request you to give me the titles of such books as contain it, and where they can be had.

The other subject to which I have alluded, is, *how are we to make the desired impression on the popular mind, in favor of agricultural reform and elevation?* Measures will never be adopted to make this a great agricultural country, and all producers intelligent, till the people call for it at the ballot box. Private efforts can produce but partial results. For thirty years, men of talent have been exerting themselves, and up to this time their influence has been felt only in their particular districts. They have not yet controlled a single entire State, so far as to make the fostering of Agriculture a leading object of policy. Why is this so? Their doctrines and positions have been correct, and of high national importance; their arguments have been forcibly set forth, but still they have made no popular impression calculated to do much general good. With regret I have seen the fact for years. On the other hand, behold the effect and excitement a politician can get up, by a single stump speech, or a letter published in a newspaper, couching not half the vitally important matter contained in a single article written by many of our agricultural writers. The friends of reform ought to sift this matter, and adopt such a course as will produce general effect.

I have thought that a part of the failure is because we confine our publications to the agricultural journals, and that *all appeals to the people* ought to be made through the political newspapers. I think your articles, published some time since in the National Intelligencer, had more influence on the popular mind than all your able editorials in agricultural journals for years. For the last six months, I have been writing upon agriculture for three of the political papers of Nashville, and can see that I have thus had more influence than I had produced in twenty years by occasional communications to agricultural papers.

But there is another and perhaps greater reason

why we have had so little popular influence; *we have had no political platform.* Agricultural reform must be made a political measure; we must have an *agricultural party;* politicians must see that they can elevate themselves by the study and advocacy of government measures to foster agriculture. One single great orator, who would espouse the cause in good earnest, could do more with popular sentiment than all of us who write for agricultural journals, and such a course would place him in any public station he might desire. If we could wake up and rouse some HENRY CLAY, or DANIEL WEBSTER, to engage in earnest in this matter, he alone could revolutionize popular sentiment in a short time. Cannot the friends of the cause find a suitable man, who is able to defend, and willing to stake his prospects on it? Can we not, in all our agricultural meetings, call out politicians, and pass resolutions to sustain none but those who will support our positions; and can we not thus rally the farmers generally?

But what will be our platform? I think the following will embrace the positions of most of us:

1. A republican government holds out Equality, Liberty, and Justice, alike to all. This is its theory.

2. Our government ought to be in practice what it is in theory. If it has protected, stimulated, and aided commerce with millions of dollars from the treasury, and to some extent done the same thing by duties, discriminating in favor of manufacturers, while nothing has been done for agriculture, this is a distinction, an unjust inequality in practice, which ought not to be tolerated by the farmers.

3. A wise policy demands that the government shall stimulate and aid each of the three great branches of production: 1st, in proportion to its national importance; 2d, in proportion to the number of producers employed in it; and 3d, in proportion to the aggregate capital invested in its operations.

4. The agriculture of the Union employs 11-14ths of the national capital, and consequently furnishes 11-14ths of the revenue, while 4-5ths of our productive population are farmers. In view of these facts, their receiving no aid from the treasury, which they mainly furnish, while the other classes, who pay but little, are so freely and liberally aided, the inequality and injustice of such practices are intolerable, because it is double dealing.

5. In view of the rapid decline of our soil, if a policy be not soon adopted to husband its productive powers, and educate the productive classes, our nation as a mass, will relapse into poverty and ignorance: and two of the great elements of national strength and power will soon be gone, namely, the intelligence and wealth of the people; and however numerous our population may be, it will be weak, and therefore an easy prey to foreign ambition.

6. The most important duty of our great statesmen is to develope and preserve the agricultural resources of the country, and offer such facilities as will educate and elevate all classes of producers.

If we can get candidates for office to stand on this or some similar platform, popular sentiment will be speedily changed, our legislation will comport with our highest interests, and our nation will become the most prosperous and powerful on earth.

I hope the Agricultural Convention, to meet in Washington city next February, in adopting a platform, will also resolve to support no politician who will not sustain its platform. Respectfully,

F. H. GORDON.

D. LEE, M. D.,
Prof. Ag., Ga. University.

P. S. I hope to hear from you soon on both of the subjects herein embraced.

TURNIP CULTURE.

THE round turnip may be sown at any time prior to the 10th of August, broadcast. The land should be completely pulverised, and should be rolled after sowing. After the plants have come up, they should be thinned out to eight or twelve inches apart each way, according to the strength of the plants.

M'MAHON says: "The critical time of the first hoeing is when the plants, as they lie spread on the ground, are nearly the size of the palm of the hand. If, however, seed weeds be numerous and luxuriant, they ought to be checked before the turnip plants arrive at that size; lest being drawn up tall and slender, they should acquire a weak, sickly habit. A second hoeing should be given when the leaves are grown to the height of eight or nine inches, in order to destroy weeds, loosen the earth, and finally to regulate the plants; a third, if found necessary, may be given at any subsequent period."

The fly often injures the turnip, and LOUDON says: "ARCH. GARRIE, a Scottish gardener of merit, tried steeping the seeds in sulphur, sowing soot, ashes and sea-sand along the drills, all without effect. At last he tried dusting the rows, when the plants were in seed-leaf, with quick lime, and found that effectual in preventing the depredations of the fly. "A bushel of quick lime," he says, "is sufficient to dust over an acre of drilled turnips, and a boy may soon be taught to lay it on almost as fast as he could walk along the

drills. If the seminal leaves are powdered in the slighest degree, it is sufficient; but should rain wash the lime off before the turnips are in the rough leaf, it may be necessary to repeat the operation if the fly begins to make its appearance."

Upon this subject, Dr. HARRIS, of Cambridge, says: "I am disposed to rank the turnip as a root next in value to the potato. In many countries it forms a large part of the vegetable sustenance of man and of his domestic animals. It is stated that in England, soon after the turnip appears above ground, a host of little jumping beetles, called by the farmers the *fly*, attack and devour the seed-leaves, so that on account of this destruction, the land is often obliged to be re-sown, and frequently with no better success. The consequent loss sustained in the turnip crops of Devonshire, in the year 1786, is estimated, in YOUNG'S *Annals of Agriculture*, to amount, at least, to one hundred thousand pounds sterling. In the same country the caterpillar or the cabbage-butterfly attacks the turnip also in great numbers. Insects allied to these are found upon the turnip in this country. The leaves, in all stages of their growth, are eaten through and through with numerous holes by a small, black, jumping beetle, a species of *Haltica*. Some of these insects infest several of our useful plants, such as the horse-radish, the mustard, the radish, the cucumber, etc. The same means for protecting these plants are to be used, because the habits of all the halticas are similar. It has been recommended to sow a quantity of radish seed with the turnip seed; for the jumping beetles are found to be so much more fond of the radish than of the turnip leaf, that it will desert the latter for the former. Air-slaked lime, sifted or dusted over plants, in some instances preserves them; and sprinkling with strong alkaline solutions will kill the insects without injuring the plants.

USEFUL RECIPES.

HOW TO PROVE AND PREPARE SEEDS FOR PLANTING.—Take a small piece of white rag, in which tie about half a thimble full of the seeds intended to be proved, of any kind, such as onions, beets, &c., and boil them twenty minutes. If they are good, they will sprout from one-sixteenth to one-eighth of an inch. Turnip, cabbage, carrot, or any other kind of good seed will swell and burst the skin, more or less, and sprout a little. The seed that will not stand this ordeal, should not be used. The farmer had better put in grain or other crop, than lose his labor by sowing such seed; all seeds should be put in cold rain water over night, before sowing; it will soften the skin of the seed and hasten the growth of the crop by some two or three weeks, than if the seed had not been so prepared. Also, all spring grain should be put into cold rain-water, as before mentioned. In case of the spring proving dry, (as is not unfrequently the case,) it would prove to be of the utmost advantage to the farmer.

On the importance of procuring good Seed, and Hints respecting Imported Seed.—Seeds, when imported from foreign countries, should be put into tin or other air-tight boxes, and hermetically sealed. Seed merchants here should be careful that this is done, as it would be of great benefit to the public. I have known instances where seeds have laid in large seed establishments, in England, for upwards of five years, and then sent off to America. Care should be taken to procure good, new, bright seed, particularly when imported from abroad.

How to procure the best Seed of various kinds.—When you set off your plants for seeding, such as cabbages, turnips, beets, &c., care should be taken to manure the ground well, with good, short, rotten manure; set them out in a damp, shady place, if possible, so that the sun will not have too much power on them. When they come in blossom, cut out the middle stalk low enough to leave five or six branches standing on the sides of the stalk below; the seed will be plump, full, and true. At the time when onions and leeks are in blossom, one third of the middle portion of the blossom should be cut out, and the same operation should be performed on all kinds of blossoming vegetables. This is the way to procure true heads of cabbage, and true bulbs to turnips. I would advise farmers and gardeners to take out a portion of the blossom of every kind of vegetation, when set off for seed.

Hints on raising Onions.—Prepare your ground in the fall of the year, just before the frost sets in; sow at that time, at the rate of six or eight bushels of salt to the acre, such as has been used for curing meat or fish, will answer, but if pickle be used, do so at the rate of one quart to the square foot. It will kill hundreds of weeds, and other noxious roots. The manure should not be put on before spring; during the winter your manure should be prepared; use such as hog-pen, chicken, horse, slaughter-house, hoof-shavings, woolen rags, malt screenings, and refuse hops from the brewery, or cow dung. Mix any or all of these together, and you will have excellent ma-

nure. A little frost will not hurt black seed, so that you should sow as soon as the ground is open in spring. Put out your manure, and level it all over the ground about two inches thick; then take a shovel and turn the manure under, with about one inch of soil on the top of it. Take a line and make a mark or furrow, from half an inch to an inch deep. All vegetables should be sowed in drills or rows. Sow the seed in the furrows and cover it lightly with the hand or back of the shovel. When lumber can be conveniently procured, it should be used, as great advantages result from keeping the ground moist, and retaining in the soil all the strength of the manure. In planting with the aid of lumber, the following instructions should be observed:—The boards should be about twelve inches wide; lay them two inches apart, and make the mark or furrow between them, which can be done without the aid of the line, as before mentioned; then sow your seed, and cover as before; let the boards remain until the onions have grown as large as the stem of a tobacco pipe, then take off the lumber. By this means, all the manure will be preserved; neither will there be any weeds to prevent the growth of the onions, which will be now rapidly shooting up, and shade the ground. A child of eleven or twelve years of age can keep a quarter of an acre clean per day. If no lumber be used, at least six times the amount of labor will be required to keep your onion patch free from weeds. The onions should be left from two to four in a bunch. Single onions frequently grow what are called "thick necks," in this country. If there should be a long continued drouth during the summer, causing your onions to fail and become yellow on the top, immediately it comes on to rain, in the latter part of June, or in July, sprinkle or strew salt over the onions in the midst of the rain, at the rate of four bushels to the acre; but be careful not to sow salt too thick, lest you should thereby destroy the crop; for although salt is most excellent for this, and various other agricultural purposes, it not unfrequently does much harm when injudiciously applied. By following this plan, I have succeeded admirably in raising onions, both in England and America; indeed, I have grown onions by the ton, while many others could not secure even a very moderate crop.

To Destroy Caterpillars.—To kill caterpillars, take a small sponge, tie it to the end of a pole, dip it in spirits of turpentine, thrust into the middle of the nest, turning it well in the hand, so that the spirits may touch each individual.—*New England Farmer.*

POTATOES.

Mr. Editor:—Having seen several statements in the different papers of the day, respecting the proceeds of a single acre, and being out of health and not able to attend to my farm, I will devote a few moments to inform you of my success in farming. Last year I planted one acre of black potatoes; I have sold from that acre $80 worth of potatoes, and have about twenty bushels left for seed—worth here $15. I also planted one acre of long red potatoes, called by some merinoes; I have sold from that acre $101 worth of potatoes, have used them freely in my family through the winter, and have twelve bushels left for seed—worth here $8. You will remember the season was dry, and but a small crop raised. I plowed deep and planted deep, and used about five cords of stable manure per acre. A. Subscriber.

Boone Co., Ill.

To Preserve Meat from Insects.—Make a solution of black pepper and molasses, and rub it well on the meat; then hang it up and smoke again. The bugs will not even crawl over it. A tea-cup full o pepper, finely ground, and thoroughly mixed with one gallon of molasses, will preserve over one thousand pounds of meat. M.

SWAMP MUCK.

Among the many valuable papers to be found in the report of the Massachusetts Board of Agriculture, bearing date 1855, and from the pen of its industrious and talented Secretary, C. L. Flint, Esq., may be found the following instructive remarks on swamp muck:

The term *muck* is generally applied by New England farmers to the mass of vegetable matter usually found in peat swamps in a state of partial decomposition; by English farmers, to rotting straw, &c.; and by the Scotch, to barn-yard manure. I use the word in its common signification in this country, and mean by it the dead vegetable substances described. These are the remains of trees and plants, some of which must have lived ages ago, more or less perfectly decomposed, and sometimes extending to a depth of many feet. This substance is made up of different constituents in different localities, and its quality is therefore very variable. Hence we find a great variety of opinions as to the value of swamp muck as a manure. The various estimates of the value of swamp muck range from 33 cents to $3 per cord, and give an average of $1.27; and as there is no reason to suppose that the estimated value is not the real value in each locality, it follows that no general real value can be definitely fixed. This depends on its quality.

Swamp muck is often cold and sour, and requires

the addition of lime or exposure to the atmosphere and to frosts before it can be advantageously applied as manure. There are different modes of preparing it for use. The most common is to dig it out, expose it to the frost through the winter, and then put it into the barn-yard to be composted with the stable manure. The following statements are from experienced practical men, and each gives the results of the observation of its writer:

A Middlesex farmer says: "I use swamp muck most successfully composted with stable manure, on different varieties of soils, but think it does best on high land of a loamy soil. I notice it is used very extensively by farmers with satisfactory results when composted with other manures thoroughly." A farmer of Worcester county says: "I use it extensively on my hard, clay soils; it works well on dry lands to keep them moist, and on clay soils to keep them light." Another writer from Dukes county follows: "It should be hauled out in the fall, and exposed to the frost during winter, and mixed with stable manure in the proportion of two parts muck to one of manure; it should also be used in the hog-pen, barn-yard and barn-cellar. I have found it a good manure on loamy, gravelly, and sandy land, especially for top-dressing for grass, when composted as above." A Norfolk county farmer, who has met with great success, says: "The best way of using swamp muck is to dig it and expose it to the sun, air, and rains one year, and then, when in a dry state, place it in a barn cellar where it will take the droppings of the cattle above until it is thoroughly saturated; then mix it well, and it is ready for use. It is good for all high lands." He estimates it at about three dollars by the cord of one hundred and two bushels. A Middlesex farmer of great experience states that "swamp muck is of different qualities, and varies as much as wood when used for fuel. Peat mud, the older the better, consists principally of vegetable matter. It has most effect on high and dry ground. Wood ashes are the best article to correct its acidity."

Similar accounts come from every section of the State. From Hampshire county we have the following: "The best method of using swamp muck, judging from experiments of my neighbors and my own, is to cart it out in the autumn, expose it to the frost and snows, then spread and plow it in in the spring on sandy, dry soils, or, in other words, on soils of an opposite nature to its own. I plowed in twenty-five loads on one-quarter of an acre last spring, and planted it to early potatoes, corn, peas, cucumbers, squashes, and melons. It was a great preventive against drouth. That ground has been sown to rye, and it looks first rate." And from Plymouth county: "Swamp muck, as also upland soils, are valuable to mix with various kinds of manure to retain and absorb the salts. For upwards of two years I have adopted a different course with my swamp land from any I know of. I employ men with long-bitted hoes, sward hooks, etc., to dig up the hummocks and bushes, in bodies large and small, as is convenient, and pile them in bunches for a few days to dry; after which I select a central bunch, in which I form a cavity or hole near the bottom or surface of the ground. Then I set fire to some of the dryest and most combustible, and as it burns I replenish it from the other bunches, smothering in the coal-pit form, though more combustible, till it is burned down to a perfect body of ashes and sand. I have not carried the experiment into full effect as I designed to; but so far as I have used the ashes, they have given me entire satisfaction. Their nature is to improve exhausted lands; and my belief is that they may be spread upon the same land upon which the ashes were made, and increase the growth of English grass. Much has been said upon the subject of reclaiming wet, swampy lands; but after all that has been done, as I understand it, a coat of manure is required to produce a good crop of English grass. Now, if our worthless swamp lands possess the very article required to produce such grass by the simple process as above named, I think it would be an improvement in one point of agriculture."

A farmer of Barnstable county says: "The best compost manure is made in our barn and hog-yards, of swamp muck, seaweed, and animal manure. Swamp muck and seaweed are accessible to all who will take the trouble to procure them. My barn and hog-yards are so excavated and dug as to absorb the liquids passed into them. Every spring and summer, after my barn-yard is emptied, I replenish it from time to time with swamp muck, peat, seaweed, and other materials from the farm, which, with the animal manure produced by yarding my cattle, furnish me in the autumn with 200 loads of good compost, which I either stack in the yard, or cart on to the land I intend to plant in the spring. I again replenish the yard, giving me, with the proceeds of my hog-yard, from 100 to 150 loads more in the following spring. In addition, I have for two years past composted, in the field adjoining my peat bog, from 75 to 100 loads of peat (thrown from the pit in summer or autumn) with sea and rockweed, or ashes and animal manure, which I esteem of equal value to barn-yard manure. I estimate the value of a cord, or four ox-cart loads of barn-yard manure composted as above, at from $4 to $5. We esteem the value of this for a corn crop and the improvement of land higher than pure animal manure."

I give one more extract from a farmer of Berkshire county. He says: "I have used swamp muck for a number of years past with good results, by mixing it with yard and stable manures in the proportion of one-third to one-half muck, and consider it worth $1 per load to use for agricultural purposes on soils that are a mixture of loam and gravel."

The testimony is uniformly in favor of composting muck with other manures. Its power of absorbing valuable liquid and gaseous substances is very considerable; and this makes it an excellent substance to mix with guano when the latter is to be used as a top-dressing. The importance of a free use of dry swamp muck as an absorbent of the liquid manures of the barn and stable can hardly be over-estimated. The loss throughout the State from the neglect and consequent waste of these rich manures, which, with a little care, might all be saved, is almost incredible. The attention of farmers was but lately called to this subject; but the value of these substances is acknowledged by some, and efforts are now made to save them by means of the use of muck and loam, either properly composted in the barn cellar, or supplied

daily to the stalls of cattle. No judicious farmer should neglect to save all such substances as tend to increase the value and productiveness of his lands. It is poor economy and bad calculation to buy concentrated manures, or to buy any manures abroad, till everything of the kind is saved at home.

From what has been said, we may infer that good dry swamp muck is worth on an average from $1.25 to $1.50 per cord; that it is best on light, loamy, sandy, or gravelly soils; and that it is valuable as a compost with barn-yard manures, or with guano.

"THE LITTLE BUSY BEE."

THE following is part of a lecture on the "Habits and Instincts of Bees," delivered before the Philadelphia Spring Garden Institute, during the early part of December last, by Rev. L. L. LONGSTRETH:

The honey-bee belongs to the class of insects which live in a perfect community;—indeed, bees can flourish only when associated in large numbers as a colony. In a solitary state, a single bee would be almost as helpless as a new-born child, and would be unable to endure even the ordinary chill of an autumnal night. If a family of bees is examined before it sends off a new colony in the spring, three different kinds of bees will be found in the hive:—1. One bee of peculiar shape, commonly called the queen-bee. 2. A number of large bees, called drones. 3. Many thousands of a smaller kind, called workers, and similar to those which are seen on the blossoms. A large number of the cells will be found filled with honey and bee-bread, while vast numbers contain eggs and immature young—a few cells of unusual size and shape being devoted to the rearing of young queens.

The queen-bee is the only perfect female in the hive, and all the eggs are laid by her. The drones are the males; and the workers are females, so imperfectly developed that they are incapable of laying eggs, and retain the instincts only so far as to give the most devoted attention to feeding and rearing the young. The queen-bee, or, as she ought more properly to be called, the mother bee, is the common mother of the whole colony. She reigns, therefore, most unquestionably, by a divine right, as every good mother is, or at least, ought to be, a queen in the bosom of her own family. The fertility of the queen-bee is very great. She will often lay as many as three thousand eggs in a single day.

As the common bees never attain the age of a single year, a constant succession of young bees must be added to the hive; and therefore, no colony can long exist without the presence of this important insect. She is as absolutely necessary to its welfare as the soul is to the body. The queen-bee is treated by the bees as every mother ought to be by her children, with the most unbounded respect and affection. A circle of her loving offspring constantly surrounds her, testifying in various ways their dutiful regard—offering her honey from time to time, most affectionately embracing her with their antennæ, and carefully smoothing her beautiful plumage. In the frontispiece of my treatise on bees I have given an exact representation of the attitude in which they gather around her. If she wishes to travel over the combs, they not only make way for her, but most politely back out of her presence, and ever seem intent on doing all that they can to promote her comfort and happiness. How ought such a beautiful example to put to the blush those undutiful children who treat their mothers with irreverence or neglect, and who, instead of striving with loving zeal to lighten their labors and save their steps, treat them more as though they were servants, hired only to wait upon every whim and humor every caprice!

If the queen is taken from the bees, as soon as they ascertain their loss, the whole colony is thrown into a state of the most intense agitation; all the labors of the hive are at once abandoned; the bees run over the combs in wild despair; and often the whole of them rush forth from the hive in anxious search for their beloved mother. When they return to their now desolate home, by their mournful tones they manifest the deepest sense of their deplorable calamity. Their note at such times is of a peculiarly sorrowful character, sounding something like a succession of wailings on the minor key, and can no more be mistaken by the experienced apiarian or bee manager for their ordinary happy hum, than the piteous moanings of a sick child can be confounded by an anxious mother with its joyous crowings, when overflowing with health and happiness. Even after the bees have recovered from their first distraction of grief, they plainly manifest that some overwhelming calamity has befallen them. Often those that have visited the fields, instead of entering the hive with that dispatchful haste so charasteristic of a bee returning to a happy home, linger about the entrance with a dissatisfied look. Their home, like that of a man who is cursed rather than blessed in his domestic relations, is such a melancholy place that they enter it only with reluctant and slow-moving steps.

The defence of the colony against its numerous enemies, the construction of the combs, the providing of stores, the rearing of the young, and, in short, the whole work of the hive—the laying of eggs excepted—is carried on by the industrious workers. There may be gentlemen of leisure in the commonwealth of bees; but, most assuredly, there are no such ladies, either of high or low degree. The queen herself has her full share of duties; for it must be admitted that the royal office is no sinecure, when the mother who fills it must superintend daily the proper disposition of some two or three thousand eggs. It is very true that the drones

> "On others' toils in pampered leisure thrive,
> The lazy fathers of the industrious hive."

But then, as a penalty for this exemption from labor, at the close of the summer they are all ignominously put to death.

Bees sometimes act the part of highway robbers; a number of them will waylay and attack a humble bee which, like an honest trader jogging home with a well filled purse, is returning with a sack full of honey to his nest. They seize the poor fellow and give him at once to understand that they are determined to have his hard-earned sweets. They do not kill him, for they are much too selfish to endanger their own precious persons; and even if they could take his life without losing their stings—a loss which

is always fatal—they would still be unable to extract his treasures from the deep recesses of his honey bag.

They, therefore, begin to bite and tease him after the most approved fashion, all the time singing in his ears, not your money, but "your honey or your life," till, utterly worn out, he delivers up his purse by disgorging his honey from its capacious receptacle. The graceless creatures release him at once, while they lick up his spoil and carry it off to their homes.

GEESE.

The goose is an excellent bird, and highly valuable to the farmer on account of its hardihood. There are varieties of the tame goose, (though none of the wild,) but the white ones are considered the most delicately flavored.

To *rear* geese, the contiguity of a pond at least is indispensable, though in fattening them, bathing is forbidden. The numbers reared in the fens of Lincolnshire, and in Suffolk, and Norfolk, are prodigious. Some of the poulterers in the vicinity of London fatten 5000 geese in the season.

Geese, though fond of dabbling in the water, are particular about their lodgings at night: these should be dry and clean. On account of their aquatic predilections, and their disposition to quarrel with other birds when confined in yards, they are better kept distinct from other poultry; and their dung is so offensive to cattle on pasture grounds, that they can only be bred with real advantage in the neighborhood of lakes and rivers, (on the marshy and worthless margins of which they can feed,) or on coarse, bog pasture, which may be rendered very profitable if devoted to the support of these easily fed birds. Some kind of grass they must have, as this agrees with them, and without such aid they could not be kept with economy, as they feed voraciously. Wherever *commons* abound, with pools of water, the peasantry derive great benefit from rearing geese; and though the enclosing of commons is on the whole a national benefit, the loss to the adjoining poor is sometimes serious, at least we must so infer from the complaint of some rustic poet—

> "It's a great shame for man or woman
> To steal a goose from off a common;
> But sure that man's without excuse
> Who steals the common from the goose."

Geese live to a great age; instances are on record of their having attained the ordinary limit of a man's age.

The gander is rarely allowed more than six wives, and he will be quite content with one. The most approved color of the gander is white, but the gray goose is preferred by many.

Geese, well fed, and kept in warm, dry lodgings at night, will lay early in March, and may be made, with great care, to produce from twenty to fifty eggs without intermission, though their most usual habit is to lay from five to twelve eggs, twice or thrice in the year. If the goose be cooped up on the first occasion, to lay in a particular spot, she will afterwards deposit her eggs in the same nest. The nest for hatching should be made of soft straw; and when the laying is over, from fifteen to twenty eggs should be put under her. Her period of incubation is one month.

Many persons, in order to obtain as many eggs as possible from the goose, have the hatching duties executed for her by deputy, either by a common hen or turkey. The latter is a much more desirable nurse, as she can cover so many more eggs than the other, and is naturally disposed to sit during the same period.

An empty glass crate, with a sack or mat thrown over it as a curtain, makes an excellent bedstead for a hatching goose.

The same precautions and treatment necessary for other poultry, should be observed in the liberation of goslings from the shell, though there is probably less danger in assisting the prisoners of this tribe from their confinement than in the case of more tender shells and less hardy birds; but in all cases the less interference with the natural instincts of the mother and her brood the better; and none but experienced persons should attempt to open the shells. Goslings may take a walk in the open air, in very fine weather, on the third day after their birth, for a short time, with the precaution of shading them from the hot sun. Their food at first should consist of barley or oat-meal, but afterwards grits may be given, of much coarser quality than that for chickens; a small portion of bran, after a little time, may be mixed with boiled potatoes; but like chickens they must be fed frequently at first, as they are greedy. Green food from the garden is scarcely a necessary ingredient in their mess, as they supply themselves liberally with grass when they become strong. If, however, they have no pasturage, they should be supplied with garden offal chopped up in their food. Geese are fattened by cramming when in that state in which they are denominated *green* geese, in November. The same mixture of barley or oatmeal with potatoes, worked into paste with milk, is used in each case for cramming; and an active expert woman can *stuff* ten geese in an hour, with the aid of a cramming pipe—a "tin funnel, with a pipe five inches and a half in length, and less than an inch in diameter, and the end sloped off like the mouth-piece of a flageolet, and rounded at the edge to prevent its scratching the throat when it is introduced. A small round bag is adjusted to the pipe, through which grain is introduced into the crop. The operator sits squat on the ground, holds the goose with one hand, introduces the pipe of the funnel into the mouth of the goose, with the other, and so supplies the food until the crop is filled. Water is at the same time given the goose to drink, and must always be left them, as the cramming renders them very thirsty." When regularly crammed, which is too frequently the case, they are very closely cooped up; but this is detestable and unnecessary barbarity. Geese do not by any means require this cruel and artificial treatment. If turned out on stubble, they soon become exceedingly fat, and much better flavored than if gorged by compulsion. Having excellent appetites, they feed greedily on raw potatoes or Swedish turnips if sliced for them, and will even fatten well on this food if confined to a yard; some oats twice a day, and barley-meal once, with milk or water, should be their only food for the last fortnight of their lives. Of all things, greasy paste is the most detestable, as it gives a strong and abominable flavor, and tends to render the flesh

loose and flaccid. They require no delicate attentions whatever.

The usual French mode is to put geese by thirties in the same house, but divided into companies of eight, separated from each other by partitions. They are often kept so closely wedged that they cannot stand upright or turn. Diabolical barbarities have been practised in Paris to enlarge the livers of geese. They have been blinded in the first instance with hot irons, and then nailed by the web of the feet to boards near a fire; then crammed with balls of paste highly peppered; and at length, when disease has enlarged the liver to the utmost point of unnatural distension, the epicure, Man, sits down to his gluttonous feast; and we cordially wish him to feel the horrors of indigestion as the too lenient punishment of this cruel indulgence of his depraved appetite.

A French queen has obtained an immortality of infamy from paying 1500 livres for fattening three geese, in order to have their livers of extraordinary delicacy, and to this day goose livers are transmitted from Strasburg to the gourmands all over the continent.

The greatest mortality affects geese from the third to the fifth week, when quill feathers are growing.

Geese are regularly plucked* twice a year (early in August and at Michælmas) for the feathers, by wretches who go about for the purpose of purchasing them. As may be supposed, they pull out the feathers in the most rough and rapid manner to save time, without paying the slightest regard to the screams of the tortured birds, and injure the wings, which draggle in a sore and bloody state on the ground. After this operation, geese are sick and thin, and in reality and appearance, especially in cold weather, very miserable (they frequently die) until the new feathers cover them, when the same barbarities are repeated.

Humane housewives do not allow these operators to pluck the quills, (which naturally fall once a year) as this injures the wings, nor any feathers except those on the belly and sides. But many less tender goose owners give the birds to the tender mercies of the pluckers every six weeks, except in winter, at three pence per head, for a thorough stripping of all the feathers—the down alone being left to protect the spine.

* Pennant says, that "in Lincolnshire they are plucked five times in the year; first at Lady-day, for the feathers and quills, and four times for the feathers only, between that and Michælmas."

HOW TO PREVENT SMUT IN WHEAT.

We regard blue vitriol as one of the best preventives of smut in wheat, and the following as an excellent way of using it:

Take then a tub or vessel of convenient form for holding three bushels of wheat, and a space of some 6 or 8 inches beyond, for skimming, washing, and stirring. Place this tub over a wider but shallower vessel, similar to the underback of a mash-tub, into which the wheat, when washed and skimmed, may by a cock or other means, be drawn off from the tub above. But we are forestalling matters. Prepare the steep as follows:—Dissolve about 3 lbs. blue vitriol in water (hot if wanted for immediate use, otherwise this is immaterial); to this add water enough fairly to swim the quantity of seed you intend to steep—say 3 bushels; into this liquor then sift gradually and lightly, by means of what in some places is called a reeing sieve, the wheat as above mentioned. The heavy grain will fall to the bottom, leaving the lighter portion, seeds of certain weeds, smut balls (if any,) and other rubbish, to float at the top. These must all be carefully skimmed off, and the main body of the wheat below well stirred from the bottom, to make sure that the whole is thoroughly washed and skimmed. This process over, some recommend a prolonged immersion in the liquid of from one to three or more hours; but I never could see any necessity for this. In the first place its adoption would be attended with great additional inconvenience, to say nothing of the extra expense, from the necessary enlargement of the apparatus for steeping and washing a much larger quantity at a time than I have named. As soon, therefore, as you are satisfied that the washing, skimming, &c., is accomplished, and the liquor drawn off into the underback, empty the wheat on to the floor, which latter ought to be thoroughly washed and cleaned between the steeps, and after spreading it about a little, sift over it enough hot slaked lime to facilitate the progress of drying. The wheat will be fit for drilling or sowing in a few hours, but if even delayed for a day or two will take no harm. The same liquor will serve several steeps, merely replenishing with fresh water and about ½ lb. of blue vitriol to each succeeding bushel of wheat. Such was my practice during many years of my farming life, nor did I ever experience any failure of plant from the use of this steep, though I certainly have from chamber lye applied too strong and immersed too long. How to account for "J. C. C.'s" failure I know no more than he does; but as he says it was sown when the ground was dry, is it not as fair to presume that the failure was quite as likely to have been occasioned by want of the requisite moisture to cause the seed to germinate properly, as by anything in the composition of a steep in such universal use, and, with common care, so harmless as a solution of blue vitriol, even though much stronger than I applied it?—*S. Taylor, Gloucester.*

Hiving Bees.—A chap out in Louisiana recently took a notion for a bath in an inviting stream, which flowed through a field he was engaged in plowing, and divesting himself of his clothes for the purpose, hung his unmentionables upon the limb of a locust tree, hard by. He had luxuriated for some half hour, and swam back to his starting point, when he perceived a bevy of young damsels approaching with their flower baskets. He scampered up the bank and into his breeches, but alas! unhappy man, not soon enough. They were occupied. A small colony of bees were in possession. He reports that he got home; but how, he knows not. "Thinks he ran;" knows he halloed, and is sure the girls laughed. His friends found in his pantaloons a number of dead bees, some angry ones, and the biggest half of a very sore youth.—*Worcester Transcript.*

A needy man's budget is full of schemes.

THE IMPORTANCE OF DEEP CULTIVATION.

So many of the ideas of the science of cultivation have come from our study of English works on gardening, that we naturally and implicitly follow them, without ever reflecting upon the circumstances of our position, in another and remote hemisphere—with a drier atmosphere,—a clearer sky,—a brighter sun,—a warmer summer,—and a colder winter;—indeed, a climate so different that scarcely a species of the natural vegetation of one country is found indigenous in the other.

With such a marked difference, therefore, in the products of the New World from that of the Old, should our mode of cultivation, our entire routine of the practice of gardening, be guided by the rules and systems laid down for the latter? A little reflection will, we think, decide that they should not; for while we admit that we are largely indebted to the works of English writers for much or a greater part of our knowledge in the art of cultivation, and the improvement which has been the result of such information, we still believe that a greater degree of advancement might have been made had we taken into consideration the character of our climate and the influences which its difference exerts upon vegetation, and modified our practice in consequence of such variation.

That our American climate does affect to a greater or less extent the physical character of our people, appears to be the general opinion of those who have studied the subject to any extent. A learned Swiss writer, whose remarks we had occasion to notice in our last volume in connection with this subject, has stated that there is "something in the climate of the country unfavorable to the high development and vigor of the human organization." But whether this is true or not, is not our purpose now to discuss: the conclusion we arrived at, however, was, that our American climate does not injuriously affect foreign varieties of fruit when growing in our soil, and that the only possible way of obviating such injury was "*deep and thorough trenching of the soil*" to supply an abundance of moisture, and the only mode in which the natural dryness of our atmosphere could be overcome.

Let us look a little into the *rationale* of this, and learn wherein our practice should differ from that of the other continent, taking, for a comparison, Great Britain.

1st. The average quantity of rain which falls in New England is greater than that in most parts of Great Britain, though from the proverbially moist climate of that country it is supposed to be much less. According to tables regularly kept in the garden of the London Horticultural Society, at Chiswick, near London, the yearly quantity of rain which falls there, is about 28 inches; while at Boston it is about 43 inches, making the very great difference of *fifteen inches* in our favor. It is true the larger portion of this great quantity falls in the early spring and late autumn months, before active vegetation commences and after it is nearly suspended, when it can apparently be less available than in the summer season, during the period of rapid growth: then again, our rains fall in large quantities and at remote periods, as was experienced the last year, when the total for 1854 was upwards of 45 inches, the average of the last ten years being only 42; yet the drouth of last summer was considered one of the most severe we have had for many years. The total quantity of rain for the three months from June to September could not have been more than four or five inches! Thus, while the rains of Great Britain fall in moderate and drizzling showers, often for several days in succession, ours are sudden, deluging the ground, and are invariably followed by a burning sun which soon evaporates all that has not sunk deep into the soil.

2d. The average temperature of our summers is much higher than that of Great Britain. The tables at Chiswick and Boston exhibited the following averages:—

CHISWICK.		BOSTON.	
June	61.7	June	67.19
July	67.7	July	72.19
August	63.3	August	70.53

But this very great difference in the average temperature of London and Boston would not be so remarkable, were it not that it is here accompanied by an almost cloudless sky, a blazing sun, and parching winds, causing evaporation at a fearful rapidity compared with that under the murky atmosphere of Great Britain. In the latter, there is a remarkable uniformity in the quantity of rain which falls, the exception being an occasional drouth, as in 1844, when we visited London, and found the grass actually brown from the long continued dry weather; while with us there are constant extremes of drouth and rain, the exceptions being an occasional moist summer, as in 1850. Our farmers rarely, if ever, experience any loss in harvesting their crops, while the British husbandman is constantly suffering from the dampness of that climate.

These at least are two of the important differences between the climate of Great Britain and our own; and indicate, to our view, that we should not be entirely guided by English works in our system of cultivation, but relying upon all that accords with sound theory combined with practice, add thereto such knowledge as our experience may suggest. We must here counteract as far as possible the excessive dryness of our climate, and strive to supply a more uniform moisture than our periodical rains afford. The details of this would occupy more room than we can now devote to it; but we shall refer to it in a future number.

At present we cannot occupy the attention of our readers to more advantage than to give the following extract from an able essay on "deep tillage," which we find in the *Transactions* of the Essex Agricultu- Society for 1854, by Dr. E. G. KELLEY, Evergreens, Newburyport. It will well repay a careful perusal, and afford evidence, additional, if any is wanting, of the importance of deep cultivation:

It turns the drouth itself to good account, and renders mulching and irrigation comparatively useless, or, if used, more efficacious. During a dry spell and in trenched ground, roots strike deeper in search of food and moisture, become more extensively ramified, and sooner find the rich loam and manure intermingled deeply with the soil. The leaching process, as it is called, is reversed, and takes place upwards more than at any other time, or, in more scientific phrase, capillary attraction is increased. As each particle of moisture is evaporated from the surface, it is succeed-

ed by another, and the whole soil is filled by an ascending moisture and gases, which are appropriated by the numerous rootlets as they have need.

The wet season is also a blessing to the deep cultivator. The more rain, the more heat, ammonia, carbonic acid, and other organic elements are left in the soil as it descends. As each drop filters through, it is succeeded by another, or by air, both essential to vegetation; and to dissolve, act on, or combine with, the inorganic elements of the soil. As the water drains off, air is sure to follow, and this is the proper mode of its circulation. Each is generally at a higher temperature than the undrained land, and the warmth of the under soil is therefore relatively increased. The farmer often objects to this waste of water, and would retain it for a dry time. The trenched and porous soil holds water like a sponge, notwithstanding the drainage. It retains, or can command enough for the wants of vegetation. But let us see the operation on the undrained land.

The farmer often speaks of his "cold wet land." No variety of soil, in any location, is, of itself, colder than another. The very water which trenching, draining, &c., allow to pass off after imparting its virtues to the soil, if retained on or near the surface by hard impervious sub-soil, becomes itself, by its changes, the source of the coldness complained of. Instead of running off, it evaporates, and by this process abstracts a great quantity of heat from the soil and surrounding atmosphere. The evaporation of a pound of water requires about 1000 degrees of heat; some authors stating it less and others more — or it reduces 100 pounds of air 45°. This is reversing the experiment of Prof. JOHNSON, in ESPY'S "*Book of Storms*," where he says, "a pound of vapor" condensed to water "would heat 100 pounds of air about 45°. The ground to a considerable depth is warmer, by many degrees where the rain is drained off, instead of being allowed to accumulate and evaporate. Hence this enormous loss of an invaluable stimulus to vegetation.

This chilling and deadly process of evaporation is going on to excess from the time frost comes out of the ground in the spring, till freezing again occurs. At this period, the undrained land, having the most water to freeze, becomes the warmest, say in December, when of no value to vegetation, but rather an injury. For once, forsooth, the undrained land is warmer than the drained! But for this excess of heat in winter, this kind of land must pay dearly in early spring. How is all this? inquires the farmer. Simply because water, in congealing to either ice or snow, has its capacity for heat lessened about one-ninth, and this excess is given off to surrounding bodies; or, in other words, its latent heat is set free. On the other hand, ice, or frost as it is called, in the ground, in melting, demands back this same heat, at the rate of from one-eighth to one-ninth of 1000°, for every pound melted; and under the surface it does not obtain all this directly from the sun, but through the soil: therefore, the more water, the colder and longer cold will be the land in spring. Now let the agriculrist go to work and make this "cold, wet, heavy land" of his, the very best he has for any product, trees, vegetables, grains, or grasses.—*Magazine of Horticulture.*

WHEAT A SEMI-TROPICAL PLANT.

A LATE number of the *Mark Lane Express*, speaking of the injury done to growing wheat in England, has the following remarks:

"We are too apt, perhaps, to forget that although the wheat plant is classed with the hardy corn crop, yet that there are limits to even its power of sustaining the rapid evaporation from its leaves by drying easterly winds, and a long-continued low temperature. We have made strange advances, indeed, in the cultivation of this crop; but we seldom reflect upon the fact that its cultivation in this country is extended to the very verge of that mean temperature in which it refuses to ripen its seeds. From what country the wheat originally came is a matter of much doubt; but yet no one disputes the fact that it is indigenous in countries far warmer than our own. It is found wild in Persia, on the banks of the Euphrates, and in the warm soils of Mesopotamia. It has been contended that the valley of the Jordan, or the parts of Palestine which border upon Arabia, may reasonably be assigned as the native country of the wheat plant. At any rate, all are agreed that this cereal has followed the train of agriculture into gradually decreasing mean temperature, from the banks of the Nile to the valleys of Greece, and through the Italian peninsula to far more northerly soils. A portion of the surface of our globe has been sometimes divided by the natural philosopher into certain cereal zones. It was when speaking of that adapted to the cultivation of wheat, that Mr. WHITLEY, in his essay on the climate of the British Islands in its effect upon cultivation, indirectly paid a well-deserved compliment to the growers of British wheat, when he asked, 'In what part of this cereal zone are our Islands situated? Certainly not in that best adapted for wheat, which is grown in greater perfection on the plains of Egypt, and in the dry hot summers of Spain. The summer temperature of the cultivated lands of the British Isles varies from 54° to 64°; in the rich plains of Lombardy it is 73°; and in Sicily, the granary of *ancient* Rome, 77°.' There is, in fact, no portion of Europe where the wheat crop is pressed into so low a summer temperature as in our own islands, and that with a considerable degree of success; and we may note that in our lands it is still advancing towards the north.

"In 1727, a field of wheat near Edinburgh, drew numerous admiring visitors to the phenomenon. Its cultivation had made little progress there even in 1770; but now it is raised in abundance on the lowlands, favorable hill districts are invaded, it has successfully been established on the shores of the Murray Frith."

TO PRESERVE FLOWERS, LEAVES, AND FRUIT FROM CATERPILLARS.—These depredators are destroyed by oils, which close the lateral pores by which they breathe. For this purpose it is advised, that on the approach of spring, a cloth dipped in train oil, be laid on such parts of the tree in which there is the least appearance of them.—*New Household Receipt Book.*

ABORIGINES GATHERING GUTTA PERCHA IN THE NATIVE FOREST.

GUTTA PERCHA.*

Among the characteristics which excite our admiration and astonishment in this era, is the rapidity with which newly discovered products of nature are applied and fashioned into such various uses, that they, in a short time, become necessities, and we look back with surprise and wonder how we have got along without them. This statement is most eminently true in the matter of gutta percha, a material the virtues of which were wholly unknown to the civilized world only fifteen years ago, yet at the present day we find it already taking its place in the front rank of substances that minister to the wants and appliances in the economy of the great human family. With gutta percha, or by its immediate aid, obstacles heretofore insurmountable have been overcome; with it, by magnetism, we are enabled instantly to send our thoughts and commands not only across rivers and bays, but even portions of old ocean itself, and thus are brought London and Paris within a few seconds of each other; with its aid we turned a branch of the Croton immediately through the brackish waters of the East river, to supply the city's institutions with that best of all beverages, pure and wholesome water. But, to our mind, the grand climax of all the uses to which has yet become available, is its application to textile fabrics, by which means it is daily becoming known among all classes as one of the important features of our domestic economy, and highly subservient in thousands of ways to comfort, luxury, and general happiness.

Gutta percha, like caoutchouc, is a carburet of hydrogen, and isomeric with that substance, and possesses a great number of the properties which characterise Indian-rubber, but exhibits certain special qualities which admit of its being applied to particular uses, to which caoutchouc is not adapted; in fact, in the principal incongruity above referred to, gutta percha has proven to have all the requirements that Indian-rubber needs, in the perfection of textile fabrics, rendered water-proof through its aid.

While the plants which furnish caoutchouc abound in the whole of the territorial zone which extends between the tropics, the *Isonandra gutta* belonging to the natural order *Sapotaceæ*, is the only tree which yields gutta percha. It grows abundantly in nearly every part of the Malayan archipelago, and to which it is believed to be indigenous. The tree (called by the native Malays *Niato*) is from sixty to seventy feet high, and three or four feet in diameter. Its foliage is a pale green on the upper side, and covered with reddish-brown hairs beneath. The sap circulates between the bark and the wood, in vessels whose course is sufficiently well marked by black longitudinal lines. The wood is of a soft, spongy na-

* Pronounced *pertsha* not *perka*. The word is purely a Malayan one, *gutta* meaning the gum or concrete juice of a plant, and *percha* the particular tree from which this is procured.

ture, and of little commercial value. Heretofore it has been exceedingly difficult to obtain specimens of the flower and fruit (representations of each will be observed in the engraving). The latter contains a concrete edible oil, which is used by the natives with their food. The tree flourishes luxuriantly in alluvial tracts at the foot of hills, and forms in many places the principal part of the jungle in such situations. It is most plentifully found in Borneo, Java, Sumatra, and Penang.

Gutta percha was first brought to England in the days of TRADESCANT,* as a curious product, under the name of *Mazer-wood*, and subsequently it was frequently brought from China, and other parts of the East, in the form of elastic whips, sticks, etc. In 1843, the attention of the scientific and commercial world was attracted to it by various personages, among whom were Drs. D'ALMEIDA, and W. MONTGOMERIE, and Mr. THOMAS LOBB. Each of those individuals receive their quota of praise in the different accounts, but as Dr. MONTGOMERIE appears to have been the most efficient, and from the fact of his having received several honorary medals from scientific associations, as the first European discoverer, we choose to join the throng, and will give his recital of the incident. In the year 1842, Dr. MONTGOMERIE was out in the woods at Singapore, when he observed in the hands of a *parang*, or native woodsman, a hatchet, the handle of which was composed of a strange substance. "I questioned the workman in whose possession I found it," says the Doctor in his account to the society of Arts; "I heard that the material from which it was formed, could be moulded in any desired shape, by dipping it into hot water, when it became as plastic as clay, and when cold regained its original hardness and rigidity." Of course the Doctor was not long in disseminating his knowledge of so remarkable a substance. He speedily procured specimens of the tree and its products, in various states of preparation, and forwarded them to the Society of Arts, in London, and subsequent inquiry led to the facts which have since become pregnant of its value.

At first the natives were in the habit, when they required a supply, of felling the trees; but experience soon taught them that the milky juice might be collected by cutting notches here and there in the trunk, and in this way the life of the tree might be saved for future tappings. The sap coagulates in a few minutes after it is collected; but before the crude gum becomes quite hard, it is kneaded by hand into compact oblong masses, from seven to ten inches in length, by four or five in thickness. This part of the work is mostly performed by women, as seen in the illustration. The blocks made up for exportation, however, are not always of the same size and appearance, the fancy of the rude barbarians sometimes giving them strange forms—such as a bird with red berries for eyes, images of ships, quadrupeds, or the "human face divine." The gum is always sold by weight, a fact which is taken advantage of by the crafty savage, who in humble imitation of more clever adulterators, sometimes introduces a stone, or other heavy substance, in the interior of the mass. As it would entail a serious loss of time on the merchant if he were to cut each block at the port of shipment, it often happens, on the substance reaching this country, it is found to conceal stones or rubbish; and then woe to the purse and the cutting knives of the purchaser. Besides this, however, the

FLOWER, FRUIT, AND STEM OF PERCHA TREE.

block often contains a vast amount of unavailable material in the shape of bark, dirt, leaves, and so on, which becomes accidentally or designedly incorporated with the gum.

From the examination of the specimens sent over by Dr. MONTGOMERIE, it became at once apparent that a large trade in the article would speedily take place; and in a few months the jungles of the Johore archipelago, the scene of the first gatherings

* JOHN TRADESCANT, the name of two Naturalists, father and son, who lived in England during the 17th century.

were explored by Englishmen, Chinese, and Malays, in search of the gum-exuding tree. Their efforts were actively seconded by the natives; and in a short time it was discovered that the supply, of which some doubts were first entertained, was almost inexhaustible. An acute observer has remarked the singular fact, that although the English, Portuguese, and Dutch, had, one or the other of them, retained possession of the islands on which the trees grew, for more than nine centuries and a half, still its valuable qualities were not discovered till 1842. The rise of this new trade gave a great impetus to the activity of the Oriental islanders; and the value of the gum becoming fully known, eager search was made from island to island, and among the forests of the Archipelago; and large profits were made by the sarmin gongs, or chiefs, of the aboriginal tribes, who exacted from the gum hunters a revenue on all they found. Sufficient profits were left even after this deduction, to stimulate the cupidity of the natives, and the port of Singapore was speedily supplied with the article in great quantities.

In its crude state, gutta percha is entirely dissimilar and different from Indian-rubber, having no resemblance to the elastic gum whatever; nor are its chemical or mechanical properties the same. It is a fibrous material, much resembling the inner coating of white oak bark, is extremely tenacious, and without elasticity, or much flexibility. It can be melted and cooled at will, without injury for future operations. It is a non-conductor of heat, cold, and electricity. It is not affected by coming in contact with oils, or other fatty substances, or with sulphuric, muriatic, or other acids. When exposed to the action of boiling water, it contracts and becomes soft like dough or paste, and can be moulded in any desired shape, which form it will rigidly retain when cold. It has an exceedingly fine grain, and its oily properties make it a perfect repellant of liquids. When first treated with water, alcohol, and ether, and then precipitated, it yields a substance consistent with *its own* common properties. In nearly every one of the above mentioned qualities, it has the advantage of caoutchouc.

The following is an analysis of the two substances, by WILLIAM ALLEN MILLER, M. D., F. R. S.:

Gutta percha,	Carbon,	83.71	*Caoutchouc,*	Carbon,	86.39
	Hydrogen,	12.36		Hydrogen,	12.08
	Oxygen,	3.93		Oxygen,	1.53
		100.00			100.00

The specific gravity of gutta percha is 975, that of water being 1,000.

Various capabilities of gutta percha were tested, immediately on the reception of the samples forwarded by Dr. MONTGOMERIE to London, and after a time, companies and individuals engaged in producing manufactures from it, for which there was, and still is, a constantly increasing demand. Some patents were granted, but the fact must be admitted, that although it was adapted to a large number of useful purposes, and made in various kinds of wares and chattels, still no process of vulcanization, or in any way changing the properties (further than cleansing) has been discovered or yet worked on the continent of Europe. The grand distinction of accomplishing this proud achievment was left for the unyielding perseverance of Yankee ingenuity—by which it *has been* accomplished—yes, and even beyond the predictions of the most sanguine of the scientific savans, who first examined the specimens forwarded in 1842. —*U. S. Magazine.*

EXPERIENCES IN LAND DRAINAGE.

DURING the last thirty years I have drained many thousand acres. The result in all cases was highly satisfactory—the tenants being generally willing to pay six and a half or seven per cent. on the expense, and the advantage to them I am aware greatly exceeds that interest. The drainage I have adopted is the parallel system. For some years I have allowed no drainage under 3½ feet deep in hard land, and in moss or bog 4½ or 5 feet. At one time (20 years ago) our drains were only 27 and 30 inches, but experience has shown us the great advantage of deeper drains. Our present drains are 3½ feet deep at 24 feet distance. We have no lowland for permanent pasture, our drainage in moorlands for permanent pasture being only a small open cut for surface water, at an expense of about £3 per thousand rods, but of incalculable advantage in sheep walks. The direction of our minor drains is *with* the fall. We do not regard the furrows—the land in this district being sown out flat. I have used 2-inch and 2½-inch pipes for minor drains, and 4-inch to 6-inch tiles with soles for leaders. Collars or socket-pipes have not been used in this district, although I believe they ought to be. We have generally stones thrown out of drains, with which we fix the joints of pipes very firmly. I have not tried the practice of giving air at places to drains, and do not consider it at all necessary. The average number of acres to one outlet I cannot accurately say; perhaps eight, ten, or twelve acres, according to circumstances. We have great variety of soil; peaty soil upon clay or till, or a good red earthy soil with more or less of clay upon rock, till, or clay. We have a great variety of geological formation, but chiefly a second class retentive soil upon the clay slate formation. We are from 10 to 400 feet above the level of the sea. The fall of rain here is, perhaps, as great as any part of Britain. In conclusion, I believe there is no expenditure of capital more profitable than that of drainage, and few measures have done more good than the government grant for that purpose. I believe if the money so absurdly expended in promoting emigration had been laid out in drainage it would have been immensly more beneficial, both in contributing to the comforts of the poorer classes and in promoting the prosperity and wealth of the community. In some cases a tract of land not worth 50s. has been, by drainage, made worth £50 a year, and farms or estates have been even tripled in value by drainage, followed by a good system of farming. *G. Guthrie—Rephad, Stanraer.*

The greater part of Lord YARBOROUGH's estate in this county that required draining has been drained by his tenants (his lordship providing the necessary tiles) during the last twenty-five years. Up to about four years ago the drains were put in from 16 to 24 inches from the surface, but during the last four years a great part of these have been taken up and put in not less than 3 feet. No difference is made

between arable and grass land. The soil generally is clay, with the subsoil of the same character; where the latter has sand veins, or is at all gravelly, a greater depth is adopted—in some few cases they are 5, 6, and even 8 feet deep, the object being to go wherever the water is. On the strong soils, 3 feet draining is found so far to be effectual; the system is to drain down each furrow, the lands being generally about 8 yards wide. Egg-shaped pipes, 2¾ inches by 1½, without collars, have been partially used, but open tiles (with sides where necessary) have been more generally used, and are preferred. The average depth of rain-fall in the neighborhood is a little over 20 inches. *Stephen Gibbons, agent to the Earl of Yarborough, Brocklesly Park.*

The result of our drainage operations on all descriptions of land has been most satisfactory. I believe nothing pays better than draining land. The drainage adopted has been generally on the parallel system, but that must depend a good deal upon the nature of the ground and the fall. The prevailing depth of the drains is about 3 feet. I have not laid drains quite so near each other on grass land as on arable. The direction of the minor drains has been generally with the fall. I have found 2 inch pipes answer best for the minor drains; I would not advise that smaller should be used on any ground. I have never used collars, as I think they would have a tendency to displace the pipes and destroy the regularity of the channel. I have not sufficient experience to say if there is any benefit by giving air at places to either main or minor drains. The average number of acres discharging at the several outlets is about three acres, sometimes more. What is the soil and subsoil? Pebbly gravel, sometimes loamy, for the soil; the subsoil generally a stiff clay. We are situated here in what is called the London basin, which consists of a great depth of stiff clay, overlying the chalk which crops out at Ware and Hertford, but is at too great a depth to be worked in this vicinity. The valley of the Lea consists of a great depth (in some places 8 or 10 feet) of loam (brick earth.) The sides of the hills are covered in many places with beds of gravel, which dip under the loam, and lay immediately over the clay. This is on the Hertfordshire side of the river. On the Essex side the clay rises again after passing under the river, and there is little or no gravel. The marshes close to the river, consist chiefly of black peat or decomposed vegetable matter, intermixed occasionally with beds of gravel, with clay underneath. The surface of these marshes is evidently higher than it was originally, and if drained would contract like a sponge, and sink again. I doubt much whether they can be drained to advantage. The best mode of improving them would be to dig up the clay and spread it on the top, so as to consolidate them. Great injury is done to the land by heading up the water for the navigation and the mills. We are about 100 feet above the sea level. Hertford is 96 feet above the high-water mark at the Thames. I am quite convinced, from experience, that nothing pays better than draining, if well done, and the drains are not placed at too great a distance. I have one field on my estate which was utterly worthless until drained. It would not grow the poorest grass. It now produces good crops of corn and roots. But I strongly advise that whatever is done in draining should be well and effectually done, and that the pipes should never be less than 2 inches. I am of opinion, also, that although the water will find its way down to very deep drains, say 4 or 5 feet, this does not obviate the necessity of close draining. We are also less careful than we ought to be in forming the outlets. What is much wanted is a good practical work on drainage, similar to Leclerc's *Traité de Drainage*, a French work. *G. T. Bosanquet—Hoddesdon.—London Agricultural Gazette.*

WHAT MEAT LOSES BY COOKING.

"Professor Wallace, of Edinburgh, has given us the results of some experiments made to determine the loss which meat undergoes in cooking. It is to be regretted that it is not more in detail, and that the weight of the bone in each joint was not ascertained; but still it is of great value. The results reduced to 100 pounds of meat are as follows:—

	Lbs.
100 lbs. of beef lost in boiling	26½
100 lbs. of beef lost in roasting	32
100 lbs. of beef lost in baking	30
100 lbs. of legs of mutton, averaging about 9½ lbs. each, lost in boiling	21½
100 lbs. of shoulders of mutton, averaging 10 lbs. each, lost in roasting	31½
100 lbs. of loins of mutton, averaging 8 lbs. 12 oz. each, lost in roasting	35½
100 lbs. of necks of mutton, averaging 10 lbs. each, lost in roasting	23½

Thus, the loss in boiling beef or mutton was less than in roasting. And it appears that meat loses by the cooking about one-fifth to one-third. A few years since, I undertook the superintendence of some experiments of the same tendency, with the view of inserting the results in this volume. These trials were made on several parts of the different animals, with as much attention to accuracy as the nature of the subject permitted. They were made on different qualities of the same kind of meat, at various seasons, both in England and Ireland. Such experiments are exceedingly troublesome, and occasion no small inconvenience; it is, therefore, the less surprising that the subject has been so little investigated; and the following results, in the absence of any others so particularly detailed, will, perhaps, prove interesting. Allowance must be made for the nature of such processes, as the difficulty of fixing an average price of meat, fish, and poultry, owing to variations occasioned by the supply and the season, the want of uniformity in the prices of the city, and by the exorbitant demands of some vendors of these articles. The degree of fatness was in all cases brought to a standard by cutting off all excess, and leaving the meat in a proper state for housekeepers' use. The meat was in all cases cooked as nearly as possible to the same degree, and the weights were determined with exactness; avoirdupois weight throughout is intended. The bones were entirely stripped of their meat previously to their being weighed. The only cost taken into account is that of meat, leaving out fuel, &c.

"1. A piece of beef, roasted. It consisted of four of the largest ribs, and was not remarkably fat: its weight was 11 1-16 lbs. During the process of roast-

ing it lost 2 lbs. 6 oz., of which 10 oz. were fat, and 28 oz. were water dissipated by evaporation. When the meat was dissected off with the utmost care, the bones weighed 16 oz. Hence, the weight of meat, properly roasted and fit for the table, was but 7 lbs. 11 oz., out of 11 lbs. 1 oz., originally submitted to experiment. This beef would cost in London 8½d. per lb. The roasted beef cost, therefore, 12 1-5d. per lb. In another trial, a piece of beef of the same description, the tops of the ribs having been rejected with their meat, was submitted to the same mode of trial; the weight of bone in 10¾ lbs. was 16 oz., and the fat 11 oz., which agrees with the former estimate."

Other parts of mutton, submitted to similar tests, gave the following results:

"17. A leg of mutton, weighing 9¼ lbs., when boiled, gave 1 lb. of bone, shank included; it lost in the boiling 1 lb. 2 oz.; the meat weighed 7 lbs. 2 oz. If the butcher's price was 8d. per lb., the meat cost about 10½d. per lb.

"18. A similar leg, weighing 9 lbs. 6 oz., afforded 15 oz. of bone, and lost 12 oz. in the boiling; the meat weighed 7 lbs. 11 oz. At 8d. per lb., butcher's price, the boiled meat would cost 9¾d per lb.

"19. A leg of small Scotch mutton, weighing 6 lbs., afforded 10½ oz. of bone, lost 5¼ oz. in the boiling, and the meat weighed 5 lbs.: cost 9½d. per lb., if butcher's prices be 8d."

The following are miscellaneous:—

"28. A fore-quarter of lamb, weighing 9 lbs., afforded, when roasted, 20 oz. of bone, and lost 1¾ lb. in the roasting: the meat weighed 6 lbs. If the butcher's price be 8½d. per lb., the roasted lamb costs 12¾d. per lb.

"31. A hand of salt pork weighing 4 lbs. 5 oz., lost in boiling 11 oz. The bone weighed 9 oz.: the meat was 8 lbs. 1 oz. If the first cost of the pork was 7½d per lb., the meat, when duly boiled, cost 10½d. per lb.

"34. A knuckle of veal weighing 6 lbs., when duly boiled, lost half a pound. Its bones, perfectly cleared of meat, weighed 2 lbs. 6 oz.; the meat weighed 3 lbs. 2 oz. Hence, if the butcher's price was 5½d., the boiled meat cost 10½d. per lb.

"35. A goose properly trussed, weighed 4½ lbs.: in this state it was roasted, and when sufficiently done, was found to have lost 18 oz. The skeleton weighed 12 oz.: the meat weighed 3 lbs. This goose would cost, in London, 4s. 6d. Hence the roasted meat amounted to 1s. 8½d. per lb.

"41. A turkey, with its liver and gizzard, weighing 4 lbs. 14 oz., was boiled: it lost 12 oz. The skeleton weighed 13½ oz.; the meat 3 lbs. 4½ oz. If this turkey cost 3s. 6d., the boiled meat amounted to 1s. 1d. per lb.

"43. A young duck, weighing 20 oz., lost 5¾ oz. in roasting. Its bones weighed 2 1-16 oz.: the meat was 12½ oz. It cost 2s. 6d.: hence the flesh amounted to 3s. 3½d. per lb.

"46. A fowl, with its liver and gizzard, weighing 1½ lbs., was roasted. It lost 3 oz.: the skeleton weighed 4½ oz., and the flesh 16½ oz. If such a fowl cost 2s. 6d., its meat, when roasted, would cost 2s. 4¾d. per lb.

"47. A chicken, weighing 1 lb. 4½ oz., when roasted lost 3½ oz. The bones weighed 3 oz., the flesh 13½ oz. If the chicken cost 2s. 4d., the meat, roasted, was worth 2s. 8d. per lb.

"56. A fine mackerel, when trimmed, and ready for boiling, weighed 23¼ oz. (including the weight of the roe, 2½ oz.) It cost 10d. It lost 1¾ oz. in the boiling. The skeleton, carefully collected, along with gills, fins and tail, weighed 4¼ oz. Hence, the cost of the eatable parts of the boiled fish was 9½d. per lb."—*Farmer's and Planter's Encyclopædia.*

BIRD ISLANDS.

These islands, lying in the Caribbean Sea, in latitude 15 deg. 39 min. N., longitude 63 deg. 38 min. W., have never been occupied till 1854, when the largest of the group was settled by parties from Boston, and named Shelton Island. Habitations were built, and, as it was nothing but rock and guano, soil was actually carried hence to create vegetation. Suitable wharves were fitted up with facilities for carrying on the business of obtaining guano. This occupation continued from the spring of 1854 to December, 1855, and it is contended in the memorial of Philo S. Shelton to the State Department that the title to the island was thereby secured for the Americans, discovery merely never having vested in any nation the right to new-found land. But Venezuelans, watchful of the new colony, sent a war schooner to Shelton Island on the 13th of December, landed troops, and ordered the settlers off. They disobeyed the mandate, when in a few days afterwards, more soldiers were sent from Laguayra; the colonists were driven away, and their property confiscated to the Venezuelan Government. It is for the redress of this injury that the interference of our Government is solicited by P. S. Shelton, of Boston, and others.—*National Intelligencer.*

The amount of guano in these islands is said to be large; and analysis shows it to be rich in phosphoric acid.

Cure for Rheumatism.—The New England Farmer recommends the following recipe as a simple and invaluable remedy for rheumatism. Take a pint of the spirits of turpentine, to which add half an ounce of camphor; let it stand till the camphor is dissolved; then rub it on the part affected, and it will never fail of removing the complaint. Flannel should be applied after the part is well fomented with turpentine. Repeat the application morning and evening. It is said to be equally available for burns, scalds, bruises and sprains, never failing of success.

A Thriving Farm.—A gentleman connected with the Delevan House, has a farm on the Sand Hills of Albany, on which, last year, he raised potatoes, corn and cabbages enough to supply the tables of his establishment, and had this Spring 1200 bushels of potatoes for sale. This season he has one hundred acres under cultivation. He has planted *one thousand* bushels of potatoes, which, with an ordinary season, must produce ten thousand bushels at least. Of corn, beans, peas, turnips, cabbages, squashes, radishes, &c., he expects to raise more than double the quantity of last year.

Horticultural Department.

CONDUCTED BY JOSEPH FROST.

THE HORTICULTRIST.—We regret to learn that the Horticulturist, which has been so ably conducted for the past two years and a half in this city, by JAMES VICK, JR., as publisher, and P. BARRY, editor, has been purchased by a firm in Philadelphia; and the number for this month is to be issued from that city.

Wherever the Horticulturist may go, it will have our best wishes in the future, and we trust that it may continue as the standard of Horticulture in this country, reflecting abroad credit on America in this and kindred pursuits, inculcate the principles of taste and teach the pleasures of rural life.

HINTS TO THE PURCHASERS OF TEEES, SEEDS, &c.

UNDER this heading we find an article in the *Horticulturist*, which so nearly expresses our views upon the subject spoken of, that we are induced to insert it. Time and time again we have been solicited by those who have been cheated and victimized, to expose to the public the tricks and trickeries of the nursery and seed trade, but have deferred it, doubting very much whether the public would avail themselves of the information or not. It may, however, be seen by some who will be benefitted.

"Our correspondent, 'M.,' of Maumee, Ohio, related in our last number some of the tricks of foreign adventurers in the West, and we have seen the very same things done in this enlightened horticultural city of ours a few years ago. Large quantities of the merest trash were sold at exorbitant prices to persons who were never known to patronize respectable nurserymen and florists at their own doors to the amount of a dollar. A short time ago a gentleman from one of the Eastern States called on us, and inquired for a person who he said had sold large quantities of Apple trees in his neighborhood, representing himself to be the proprietor of one of the oldest and most extensive nurseries in Western New York, and representing also that his trees were propagated by some superior method which was known to him only, and which gave them a decided superiority over trees grown in the ordinary way. On inquiry, we found this man did not own a single foot of land, had never been a nurseryman, nor had he any interest whatever in any nursery establishment, but bought such trees as he could make the largest profit on. He was a crafty rogue, however,—pretended to more than ordinary piety, and victimized the religious people of New England handsomely. A few weeks ago a nurseryman of Rochester received intelligence that he was represented in some parts of Ohio by a person who claimed to be his agent and *son*, while he not only did not know such a person, but had never seen him or heard of him before, and he was compelled to incur the trouble and expense of advertising him as an impostor. Is not this a high-handed piece of deception to be attempted in such a business, and among an intelligent people? The man who will do such a thing is not a particle better than he who counterfeits a bank bill or a silver dollar, or who will forge a signature to a bank check. We have it from perfectly reliable authority, that a company of tree dealers, hailing from Ohio, purchased at a small nursery in Western New York a quantity of seedling unworked fruit trees, (Peaches and Cherries,) knowing them to be such—for the nurseryman we believe to be a perfectly honest man,—and they took them up, tied them in parcels, and attached labels to them bearing the names of all the best fruits in the catalogues. We were informed that these spurious articles were to be carried to Tennessee. Here is a piece of villainy for you! Such men richly deserve the penitentiary, and we can not understand how any honest man could conscientiously refrain from exposing them, and thus aid in bringing them to punishment.

"In every part of the country people have been outrageously deceived by itinerant *grafters*. They traverse the country, and take orders to do grafting at so much apiece for all that live. When the season of grafting comes, a few workmen come along with a wagon-load of scions, containing every variety that could possibly be called for, all procured from the most responsible source; and as a proof of this, a a catalogue of some well-known nurseryman is exhibited, and, it may be, a forged bill or invoice; while the scions were most likely cut from some of the orchards they had been grafting in. Thousands of orchards have been ruined in this way. We have now one in our possession which the previous owner had had grafted by one of these rogues, and instead of having three or four select sorts, as he ordered, he had a collection of vile rubbish, mostly natural fruit, and in some cases three or four different sorts on a tree.

"We might go on and cite cases of this sort which have come to our knowledge enough to fill a dozen pages of this journal, but it would be a waste of time and paper. In this part of the country people are more cautious and careful than formerly, and few men now are willing to trust unknown irresponsible persons with the important duty of grafting their fruit trees. Not so, however, in some parts of the West and South, where we are informed the speculation is in full blast. We hope this word of warning may find its way there, and prevent at least a few from allowing themselves to be victimized."

RURAL CEMETERIES.

IT is, doubtless, a dictate of our common humanity, to cherish reverence and affection for the ashes of the dead. Even the savage, driven into the wilderness by the march of civilization, parts from the graves of his fathers as reluctantly as from his cornfields and hunting-grounds. Some men, it is true, affect indifference concerning the place and manner of their sepulture. Like certain of the ancients, who gave orders that their bodies should be burned, and

the ashes thrown to the winds,—or others, who would have their remains exposed to the birds and beasts of prey,—they deem it a weakness to feel any concern about the disposal of their bodies after death. Yet even such persons, with all their professed indifference concerning themselves, do not fail to show a tender respect for the dust of their deceased friends. Like other men, they wish to have their remains suitably composed for the grave, and the spot of their interment marked by some commemorative memorial.

But *where* shall our bodies rest? Not in the crowded city or town, amid the haunts of traffic, and pleasure, and vice, where gain will ere long disturb their repose and subject them to indignities; but in the country, under the open sky, and amid all the genial influences of nature. This has been the almost universal desire of mankind. In the earliest records of our race, we read that ABRAHAM bought a field and the cave which was therein, and all the trees that were in the field, for a permanent burial-place for himself and his descendants. The ancient Egyptians and Persians buried their dead in the country. The former had a public cemetery on the shores of the lake Acherusia. It was a large plain, surrounded by trees, and intersected by canals. The bodies of the dead were first embalmed, and then buried in the sand or in tombs cut out of the rocks. The custom of burning the remains of the dead, originated with the Greeks, from whom it was copied by the Romans. After the ceremony of cremation, the ashes were gathered into an urn, and the whole was carried in procession and interred by the side of the public roads without the city. Many of the gardens around Jerusalem were used as family burial-places. The early Christians interred their dead in caverns, probably to conceal them from the malice of their persecutors. The ancient Germans were wont to bury in groves consecrated by their priests. The Turks bury their dead amid groves of cypress, which they style, very poetically, "cities of silence."

The rural cemetery, however, as we now see it, is of comparitively modern origin, and is the offspring, in no small degree, of modern refinement and a Christian civilization.

The connection of such burial-places with the public health, is a consideration not to be overlooked. When a multitude of bodies are interred side by side, and, as is sometimes the case, one above another, it is impossible but that the surrounding air should be tainted with a noxious effluvia. The atmosphere of a church can hardly be wholesome when the soil about it and beneath its floors is crowded with the decaying relics of the dead. It can not be healthful to visit such places often, nor to live in their immediate neighborhood. Much better is it to commit the remains of our dead to the fresh earth, where the pure winds blow, and amid flowers and verdure.

Rural cemeteries also exert an important influence on the public taste. When properly laid out, they present to the eye a pleasing landscape adorned with trees and shrubs and vines, with well kept roads and walks, and tasteful monuments. All classes in society can obtain easy access to them, and can learn by their own inspection how beautiful is nature—how beautiful in her own simplicity, and also when her charms are heightened by the hand of art. That such places will be visited by large numbers, all experience shows. To say nothing of the multitudes who throng Père la Chaise, near Paris, and other cemeteries in Europe, we are told that the principal grounds of the kind in our own country are resorted to annually by thousands. Laurel Hill, near Philadelphia, was visited in one year (1848) by upwards of 30,000, and Greenwood and Mount Auburn by a still greater number. Nor do these thousands enter the gates of our cemeteries to no good purpose. They are moved, it may be insensibly, with pure, and tender, and lofty emotions, and they carry away with them finer tastes and higher conceptions. The works of art here beheld, unlike those seen in some public resorts, present nothing to inflame the passions or corrupt the heart.

And this suggests another advantage of rural cemeteries—their influence on the moral feelings. Can any good come from visiting the old-fashioned graveyards, barbarously kept as many of them are? Who has not been shocked at seeing their rude hillocks, crowded together in dreary rows, perhaps grassless, or covered with rank weeds and briars, their headstones tilted over at all angles, or broken and prostrate? Was any one ever made better by walking through a burying-ground used as a sheep-pasture, or left open to the street by a broken fence, or allowed to stand treeless and shrubless, exposed to the glaring sun and howling wind? Such sights sadden us, indeed; but they do not mend our hearts. They remind us that we must die; but they also make us dread to die—dread to think that our bodies must be put into the same festering earth, and be treated with the same neglect.

But why clothe death with such unnecessary terrors? It is sad enough to turn away from life and all we hold dear, without adding to the sadness by rendering the grave an object of disgust and dismay. Rather, let us make our burial-grounds pleasant and attractive: places where we shall be inclined to go often, to muse upon life and its grandest concerns, and upon death and the glorious rewards awaiting the good after death,—to reflect upon the virtues of those whose dust sleeps aronnd us, and to consider how we may imitate those virtues. The spirit of THEMISTOCLES was fired by visiting the tombs of the illustrious dead. "The Romans buried their most honored citizens along the Appian Way, that the youth as they entered the city might be moved to emulate their virtues and share their renown." The early Christians worshipped near the graves of the martyrs, that they might be filled with their spirit. And so, may not we, while walking among the tombs of the good departed, catch something of their spirit and be filled with aspirations after a better life?

There should be nothing in the place or manner of their interment, to detract from our tender and respectful veneration for the dead. But this can hardly be avoided, if their graves are dug in a dismal and unsightly spot. How much better to choose some retired, sunny slope, the most beautiful in the region around us, and make it sacred as a burial-place forever. Here, let there be trees with their grateful and soul-subduing shade; there, let us see the open lawn and cheerful sunshine; around us, on every hand, let

to behold the opening bud and springing seed, types of the resurrection; and in the distance, let there be, if possible, glimpses of blue hills, suggestive of the mountains where the departed walk.

But leaving these points, let us turn to some more practical aspects of this subject. In choosing a site for a rural cemetery, land moderately elevated and dry should be selected. If the soil is not naturally dry, it should be made so by thorough under-draining. It should be as near to the center of the population as it can be without exposing it to the liability of ever being encroached upon.

A proper site having been obtained, the grounds should be laid out by persons competent to the task. The usual committee or trustees having the charge of founding a cemetery, can not do such a work, nor can an ordinary land-surveyor, nor every "old country gardener." Before a single stone is turned, an artist should be secured, if possible, who can appreciate all the capabilities of the place, and can use them to the highest advantage. He should be instructed to prepare a plan suited alike to the nature and situation of the place he has to work upon, and to the wants and means of those whom he serves; and then his plan should be faithfully carried out. But where a professional landscape gardener can not be obtained, let the matter be entrusted to a committee possessing reliable taste and judgment. They surely will not commit the folly of mapping off the ground into squares, like a chequer-board, with straight roads and walks, and these bounded by stiff Balsam Firs at regular distances. On the contrary, they will lay out certain main roads, leading by easy curves to all parts of the cemetery, and from these, gravelled walks will lead to every grave. These roads will wind, not for the mere sake of winding, but because nature will indicate here and there that they should do so; as, for example, to avoid a tree, or hill, or rock, or pool of water. Moreover, a portion of the ground should be reserved, where the poor can buy lots at small expense, and where the friendless and the stranger can be suitably interred.

As to the trees suitable for such a cemetery, it is obvious that some variety should be sought for. Evergreens should form an important part; but were none others planted, a very sombre effect would be produced. Nor should the weeping varieties of deciduous trees predominate, as this would render the place gloomy, and give it a very unnatural appearance. There should be much of that variety which nature shows us on every hand, modified somewhat by the peculiar character of the place, and the uses to which it is to be devoted. Trees planted in masses occupy too much ground. Heavy, round-topped trees, are less appropriate than those with conical, pointed heads. Pendent, drooping trees, are suitable for planting at intervals in all parts of the ground. Evergreens of every name are appropriate, intrinsically so, and because they have been associated from time immemorial with such places. For small lots in cemeteries, none are so suitable, in these cold latitudes, as the Norway and Hemlock Spruce, the Siberian Arbor Vitæ, and Red Cedar. Where the climate will admit of planting them, the various Junipers, Yews, and Arbor Vitæs afford a wide selection.*

"The Cypress funeral;
The Laurel, meed of mighty conquerours
And poets sage; the Firn that weepeth still;
The Willow worne of forlorne paramours;
The Eugh obedient to the bender's will."

It seems to be generally conceded that flowers should have a place in the rural cemetery. They have a cheerful aspect, and are emblematical of our immortality. But a continual digging of the soil above the dead, suggests the unpleasant idea of maltreating their remains: it at least conflicts with the idea of complete repose. Is there not more real beauty and grandeur in simply well-kept trees and grass and monuments, lighted up here and there with gleams of sunshine? If flowers are introduced, it should not be for a gaudy horticultural display, but as an expression of affectionate remembrance; and they should be few in number, and delicate in form, size, and color. A white Rose by the side of a tombstone, the Violet, and Daisey, and Myrtle, are always appropriate and pleasing.

On the subject of monuments and their inscriptions, we will presume to offer only a few suggestions. A very common and unpleasant feature of our ordinary grave-yards is that of monuments leaning over and falling to the ground. The only way to keep gravestones erect, in our climate, is to imbed them in solid mason-work laid below frost; or, better still, on stone piers built up from the bottom of the grave. The most durable monuments are those composed of the fewest blocks of stone, thus exposing only a small number of joints to the action of the weather. Care should be taken, also, that the stones have no cracks or seams or visible defects of any kind. As to the material best adapted for monumental purposes, the writer will not undertake to give an opinion. The best marbles of this country are perishable; and even the finest of the Italian, which in Southern Europe stand unharmed for centuries, under our harsher skies soon corrode. Granite, sienite, and some other of the older and harder rocks, are very durable; and for plain, massive monuments, are quite appropriate. Experiments which have been tried with the red sandstone of New Jersey, seem to indicate that it will prove to be one of the best stones for monuments that can be used in this country.†

As to the character and style of monuments, it would be presumptuous to lay down any universal and invariable rule. What would be suitable for a king, or an eminent statesman, or a great public benefactor, would not, probably, be suitable for a private citizen, whether he were rich or poor. A huge monument piled to the sky, and bedecked with ornaments, simply because the occupant of the grave beneath it, or his friends, had money enough to build it, is vulgar in the extreme. Monuments which are miniatures of certain ancient and famous structures, are also objectionable; for, what looked well on a foreign shore, and when built of lofty height and corresponding proportions, often appears ridiculous when reduced to a few feet, and imperfectly cut and balanced. When a work of this kind is attempted, it should be entrusted only to the most skilful hands. Objections may be urged against altars, and tablets placed horizontally, that their inscriptions are liable to become defaced, and that they soon lose their horizontal po-

* See an editorial on this subject, in the *Hort.* for April, 1854.

† See a paper on the subject of "Monuments," published by the Greenwood Cemetery Association.

sition, and that they seem to lie heavily on the breast of the dead, and to confine and shut them away from us. This last, however, is a matter of mere feeling and taste, and may not prevail with all minds. The broken column and the reversed torch deserve also a passing criticism. These certainly are beautiful symbols, as might have been expected from the country of their origin, Greece. But are they appropriate for us? Greece had no Bible, and knew almost nothing of the resurrection nor of the Christian's heaven, and might well represent death with such gloomy devices. But when a good man dies, we do not consider the column shattered, nor the lamp of life extinct. The column ends just where the ALL-WISE ARCHITECT saw it most fitting to terminate it; and the lamp still burns, only with a brighter flame. It has been happily said that, "Those who will use the gloomy hieroglyphics of a perished creed, should at least place near them the cheering emblems of a religious faith. If death be represented with downcast look and inverted flame, let Immortality, as in the fine group of THORWALDSEN, stand by his side with torch high blazing, and eyes upturned with love and rapture." But whatever style of monument be chosen,—obelisk, pyramid, urn, cross, column, slab, or any thing else, let it be characterized by simplicity. Ostentation is nowhere more disgusting than in a burial place. We walk past the huge sepulchral stone of the merely rich man, with the trifling exclamation: "How much this cost! What vain man lies here?" But when we come to the little hillock which covers the remains of a child, though it have no headstone, our tenderest respect and sympathy are at once excited. Nothing seems more beautiful than that lowly mound and the Violets upon it, watered, perhaps, by a mother's tears.

In regard to this whole subject of monuments, the best general rule that we remember to have met with is this: "*A monument should betray no desire to exhibit great costliness, and no endeavor to avoid a reasonable expense.*"

It is perhaps impossible, now, to change the prevalent custom of inclosing cemetery lots with hedges, chains, and fences; but obviously, they are not needed to protect monuments from injury by man or beast; for, any one desirous of marring them, can do so, in spite of such inclosures, and cattle are never allowed to range in a well-ordered cemetery. Why not indicate the boundaries of lots by small granite posts at the corners, a few inches above the ground, or by a slight elevation of the sod above the surrounding soil? Why not avoid whatever has the appearance of exclusiveness and pride, in the place of graves, and let the prevailing spirit and expression of the spot be that all who slumber there are brethren of one common family?

It is a pleasing sign of the times that so much attention is now being paid, in all parts of the country, to the founding of rural cemeteries. It is an honor to the character and tastes of the people. We are not, then, wholly engrossed in the worship of Mammon, forgetful of the amenities and tender charities of life. Let us encourage, more and more, every movement which looks to the promotion of true social culture and happiness. Let us seek to make our homes more comely and attractive; and, since we are all appointed to die, let us smooth the passage to the grave by the comforts of religion, by tender respect for the dead, and by beautifying their last resting-place."—*A. D. G., in Horticulturist.*

THE HAWTHORN.

AMONG all the variety of beautiful trees and shrubs which adorn the landscape, none can claim a more prominent place than the hawthorn, in its numerous species and varieties. "Of all the genera of hardy, ligneous plants in cultivation in British gardens," says LOUDON, "there is not one, which, taking it altogether, can be compared with the genus Cratægus. All the species may be trained either as small, handsome, exceedingly picturesque trees, or as beautiful and picturesque shrubs, at the pleasure of the cultivator. They have all a characteristic, neat, orderly manner of growth; neither so slow as to convey the idea of the want of vigor, nor so rapid and robust as to be considered coarse and rambling. Their leaves are remarkably neatly cupped and finely tufted; their flowers appear in masses, so abundant, in some species, as almost to cover the plant in the flowering season; and their fruit is produced in as great abundance as their flowers. The color of the flowers is generally white, and they are mostly more or less fragrant; some of them, as the common hawthorn, being particularly so; their color, though white at first, yet in some cases, as in that of the common double-flowered hawthorn, die off of a very fine pink; and there are several pink-flowered varieties of the common hawthorn which are strikingly ornamental. The fruit varies in size, from that of *C. spathulata*, which is not much larger than a mustard seed, to that of *C. mexicana*, which is about as large as a golden pippin apple. The color of the fruit, as already mentioned, is red, yellow, black or green, and includes many varieties of shade. Finally," observes this author, "if a man were exiled to an estate without a single tree or shrub on it, with permission to choose only one genus of ligneous plants to form all his plantations, shrubberies, orchards and flower gardens, where would he find a genera that would afford him so many resources as that of the Cratægus."

May is the common and well known name of the English hawthorn in Great Britain, and its flowers have been identified with the floral games of May, from time immemorial. The Greeks and Romans gathered the flowers in honor of Flora, to whom the plant was dedicated, and whose festival began on May Day. Formerly, in decking the May pole with flowers, a bunch of the hawthorn was always put upon the top. This, however, was in the olden time, previous to the alteration in the style, when May Day occurred eleven days later than at present. It is now so rarely in bloom on May Day that the practice is abolished, except in the southern part of England. Various legends are connected with particular trees,—one of the most remarkable of which is that of the Glastonbury thorn; this is said to have sprung from a staff stuck into the ground by Joseph of Arimathea, upon his visit to England, after the death of Christ, which immediately shot forth leaves and blossoms. It was upon Christmas day; and the legend adds that the thorn is still in existence and annually blossoms on that day.

Few flowers have been more celebrated by the Poets than the hawthorn. CHAUCER says:

"Marke the fair blooming of the hauthorne tree
Who finely cloathed in robe of white
Fills full the wanton eye with May's Delight."

But the hawthorn of the poets, around which so many associations are clustered, is not the hawthorn of our woods and fields, growing in pastures and hedgerows, on hillsides and mountain cliffs, from Maine to Florida. These, though many in number and various in growth and habit, enlivening the season far into May and June by their snowy blossoms and tender green foliage, and adding variety to the brilliancy of our autumn scenery by the abundance of their fruit, and more beautiful than the May, are wanting in one thing—the delightful odor of its blossoms, which, at the early season of their opening, is reviving to the spirits. CHAUCER again says:

"There sawe I growing eke the freshe hauthorne
In white motley, that so sote doeth ysmell."

Yet many of our native species, sisters of the May, can, with the exception of its fragrant flowers, fairly claim an equal rank for picturesque and ornamental beauty. The variety exhibited in their foliage,—the various colors of their large or smaller berries,—and the numerous forms that the different species assume, give them a value surpassed by no other class of ornamental trees.

The number of species and varieties enumerated in LOUDON'S *Arboretum* is upwards of sixty, more than twenty of which are natives of America. Many of the varieties as well as the species so much resemble each other that it is with difficulty some of the latter are identified. Mr. LOUDON devoted many pages of his splendid work to detailed descriptions of each, but the group is still in much confusion among nurserymen who cultivate a large number of kinds. It would occupy too much space to give a descriptive list of all the hardy species and varieties deserving the attention of lovers of fine trees: our object is simply to commend them to notice, with the hope that now, while they are in full bloom, the variety and beauty of their blossoms may attract attention, and later in the year their diversified foliage and many-hued berries be carefully studied. Nearly all the kinds are hardy: a few from the south of Europe and some from Mexico will not stand our winters at the North; but we have in cultivation some thirty or more, which embrace the principal divisions of the group and many of the showiest and best species. The Cockspur thorn, *C.* Crus Galli, is well known as one of the most beautiful hedge plants, having an entire, deep, glossy foliage almost sub-evergreen. The common Newcastle thorn is also much used for the same purpose, but is less ornamental.

Of the English hawthorn, there are three exquisite varieties, which should be found in every garden: these are the Double Red and Double White and the Single Red; the latter, the most brilliant of the three when viewed as a mass; the number of its blossoms and their deeper color having a marked contrast with other trees at its early season of blooming. The Pyracanth thorn is a very fine variety, hardy and exceedingly beautiful. There is also one or two weeping thorns, of recent production, that form exquisite lawn trees.

For planting in lawns of limited extent, the hawthorn is one of the best trees; it does not grow large, and overtop and shadow other shrubs or plants, but forms a low and fine head, loaded with flowers throughout the spring and garlanded with fruit even into winter.

"In pearls and rubies rich the hawthorns show,
While through the ice the crimson berries glow."

One word as to their culture. Though naturally springing up in thin and rather poor soils, they love a good rich mellow earth, naturally dry. They will not flourish in a wet situation: there they soon get mossy and stunted, and assume a decrepid habit. Planted in a good soil, well cultivated and liberally enriched, they soon form fine large branching heads, and display their flowers in a profusion more lavish than any other tree.—*Hovey's Mag. of Hort.*

REMEDY FOR THE CURCULIO.

MR. M. KELLY stated at the Pomological meeting, that several fruit growers of the vicinity of Cincinnati had tried the following recipe for preventing the destruction of plums by the curculio, with great success. It is also an effectual remedy for mildew on grapes.—*Ohio Cultivator.*

Put half a pound of sulphur and one pound fresh lime into a tight barrel, then fill up with boiling water, and cover closely for 10 or 12 days, when it will be fit for use. This forms hydro-sulphate of lime, and has an unpleasant odor which is offensive to insects, but the liquid is not injurious to vegetation. It is used by sprinkling the trees or vines with a garden engine or syringe, repeating the application every three or four days, or oftener, if showers occur to wash off the material.

GERAINUMS.

THE shrubby kinds are commonly increased by cuttings, which, if planted in June or July, and placed in the shade, will take root in five weeks. They are the most tender, and when placed out of doors, should be defended from strong winds, and be so placed as to enjoy the sun till eleven o'clock in the morning. As the shrubby kinds grow fast, so as to fill the pots with their roots and push them through the opening at the bottom, they should be moved every two or three weeks in summer, and the fresh roots cut off. They should also be newly potted twice in the summer: once about a month after they are placed abroad, and again towards the end of August. When this is done, all the roots outside the earth should be pared off, and as much of the old earth removed as can be done without injuring the plants. They should then be planted in a larger pot; some fresh earth should first be laid at the bottom, and on that the plant should be placed, so that the old earth adhering to it may be about an inch below the rim of the pot; it should next be filled up, and the pot slightly shaken; the earth must then be gently pressed down at the top, leaving a little space for water to be given without running over the rim; finally, the plant should be liberally watered, and the stem fastened to a stake, to prevent the wind displacing the roots before they are newly fixed.—*Household Receipt Book.*

Ladies' Department.

HINTS TO HOUSEWIVES.

A CORRESPONDENT of the *Lady's Book* says that the best and most convenient way to keep eggs is "to have always on hand a saucer of unsalted butter, and as the eggs come in, cover them immediately with a complete coating of this, so as to exclude the air entirely; and when packing, place the small end downwards."

An excellent way to dry cherries, is to stone them carefully, save the juice which naturally comes from them, and place them in a kettle, juice and all, and to a quart of cherries add a quarter of a pound of good brown sugar; scald and dry on plates in a warm but not hot oven. The choicer varieties will give a preserve preferable to raisins, and of delicious flavor. Currants, also, prepared in the same way, are useful in many ways in flavoring pies, puddings, etc.

We herewith republish a recipe given in last year's volume, for making currant wine: "Carefully pick and stem your currants, bruise them thoroughly, and strain. To a quart of juice add two quarts of water and three pounds of good sugar. Fill your cask or vessel full, taking the precaution of having a little on hand to replace the loss by fermentation; bung loosely, and when the scum ceases to rise, close tight; and in a few months you will have a genuine native wine.

In our January number we published a choice recipe for making currant jelly, to which we would refer our readers.

The following recipe for preserving cherries has been kindly furnished us by a fair friend, and we can vouch for the quality of the preserves made according to the directions: Take equal quantities of cherries and good coffee sugar. After boiling the fruit ten or fifteen minutes, skim it out, and then boil the liquor to a thick syrup, taking off the scum as it rises, and apply the syrup to the fruit in suitable jars for preservation.

DIETETIC BUDS AND YOUNG SHOOTS.

THESE comprehend the bulbous-rooted plants—the roots being in reality subterranean buds. Onions, leeks, garlic, chives, shallots, and the rosambole of Denmark, are of this class. They are very pungent, owing to an acrid volatile oil, and to weak stomachs exceedingly objectionable. We have, indeed, so many better things to eat, that it were well if all persons would let them alone. None but torpid nerves, and half-palsied organs of taste ever desire such acrimonious aliments.

Asparagus, though agreeing botanically, is very different dietetically, being one of the most wholesome and nutritive of the spinaceous plants. The term asparagus, however, comprehends the common garden vegetable of that name, (*asparagus officinalis,*) sometimes also called sparrow-grass; the sea-kale, (*crambe maritima,*) growing naturally in many places along the sea-shore; the artichoke proper, (*cynara scolymus*) also a maratime plant in its wild state; the cardoon, (*cynara cardunculus,*) a native of Candia, and similar to the artichoke; the rampion, (*campanula sapunculus,*) a native of England, though not much cultivated; the Prussian asparagus, (*ornithogalum pyrenacum.*) an inferior kind of asparagus raised in some parts of Europe; and the bladder campion, (*silene inflata,*) which is seldom seen in this country.

The common asparagus, or sparrow-grass, is as delicious as any vegetable of the kind ought to be, and as wholesome as any can be; hence our horticulturists would do well to let this variety supersede all others of the species.—*Hydropathic Cook Book.*

ANIMAL FOODS.

THE alimentary principles derived from the animal kingdom are the proteinaceous, gelatinous, oleaginous, and the sacharine matter of milk; in other words, fibrin, albumen, casein, gelatin, and sugar. They are yielded by flesh, blood, cartilages, ligaments, cellular and nervous tissue, viscera, milk, and eggs. All the species of animals—beasts, birds, fishes, reptiles, and insects—which human ingenuity has been able to grasp, have been "appropriated" as nourishment, and there is scarcely any part of any animal carcass which has not been more or less employed as human food.

In the most civilized countries the domesticated animals afford the principal flesh-meat; though the practice of eating the oxen which "have plowed for us," the cows which have "given us milk," the lamb which we have petted, and the sheep which "has warmed us with its fleece," seems more becoming the savage than the civilized state of society.

The mammals—neat cattle, sheep, and hogs—afford the chief supply of this kind of food in this country. To this class also belong the deer, rabbit, hare, elk, moose, buffalo, and bear, which are employed to some extent in many countries. The Kalmuck Tartars, and some other tribes of the human family, eat their horses, dogs, cats, rats, and mice.

Of birds, the common fowl, turkey, goose, duck, partridge, woodcock, and pigeon are principally eaten. A variety of other game birds are found at the refectories.

Among the reptiles used as food are the various kinds of turtles, and several species of frogs. The flesh of vipers was once recommended by regular physicians as a restorative diet for invalids!

Our waters afford an innumerable variety of fishes, nearly all of which are devoured by the human animal.

The shell-fish employed as food are the lobster, crawfish, crab, prawn, shrimp, oyster, muscle, cockle, whelk, limpet, periwinkle, etc.

Unquestionably the very best, or, if any prefer the

term, the least injurious, animal food is that derived from herbivorous animals, as beef, mutton, etc. Those animals which feed on vegetables exclusively will certainly supply a purer aliment than those which prey on other animals. Omniverous animals, which eat indiscriminately vegetables or other animals, are inferior still. Thus the hog, whose filthy carcass is converted into a mass of disease by the fattening process, and whose flesh and adipose accumulations, under the names of pork, bacon, and lard, are filling all Christendom with scrofula, erysipelas, and foul humors, is even less pernicious to the nutritive functions than is the flesh and blood of the dog, panther, lion, tiger, hyæna, vulture, etc.

It is true that most of the cold-blooded animals, as various kinds of fishes, though mainly carnivorous, are not as depraving aliment as is the flesh of warm-blooded or land animals who eat carnivorously. But this is owing to their cooler temperament. Yet sea-food of all kinds is less nutritive and less wholesome than the flesh of herbivorous or graminivorous animals.—*Hydropathic Cook Book.*

A TOUCH OF NATURE.

A LETTER-WRITER who strolled into a pawn-broker's office, in New York, describes a scene as follows:—

"We noticed among the group an interesting girl about seventeen years of age, in faded yet deep mourning. There was an expression of anxious melancholy upon her pale and beautiful countenance, which riveted our attention. She was not among those who were bidding, but was undoubtedly waiting until some article was offered which she was desirous of possessing. At length the auctioneer offered a miniature and locket. The pale girl started, and rushing towards the counter, exclaimed in a voice of deep anguish:—

"O, don't sell them, sir, for mercy's sake; keep them a little while longer. I shall be able to redeem them, I shall, indeed!"

"What's the bid for them," continued the auctioneer.

"Do not bid!" shrieked the girl. "I had to pawn them to get bread for my little sister; it is mother's miniature; and her hair which that locket contains; my poor dear mother gave it to me when she was dying. O, do not sell it—pray don't!"

It is impossible to describe the sensation produced by this appeal among the assemblage. There was not a solitary bid for the articles: but we saw an elderly gentleman in the garb of a Quaker, go to the desk, and in a few minutes afterwards we saw that pale girl press his hand to her lips, and after eagerly kissing something which he handed to her, she rushed from the room."

STAINS UPON COTTON OR LINEN GOODS.—Take one pound of chloride of lime (bleaching powder,) and put it into a gallon of cold water, stir it well for a few minutes, and allow it to settle. Pour off the clear liquor, and keep it in tightly corked bottles. Stained clothes—linen or cotton—after being washed to free them from grease, by dipping the stained parts in this chloride fluid, will cause the stains to be removed quicker, safer, and with far less trouble than by any other known means. In the laundry, this fluid should be kept in a large stone-ware or glass vessel. It should be large enough to dip in the articles so as to cover them entirely in the liquor, when no harm will result if they lie for some hours. A careful laundress should also have a vessel of very diluted sulphuric acid, to dip the articles of clothing in after they are taken out of the chloride, and washed. The clothes should be well rinsed, using three waters afterwards. This is a bleaching process, nearly the same as that practiced in bleach works. A little of the salts of oxalic acid put on an iron stain, and a little hot water poured on it to dissolve it, will remove the stains very quickly without injury to the cloth. Our readers may place the utmost reliance on what we have said; we are acquainted chemically with the whole process; oxalic acid is a poison, and should be kept out of reach of children. It is very difficult to remove stains from woolen goods. If the woolen cloth is white, some sulphuric acid in very hot water may remove it, if it is an iron stain. It may also remove it without injury from a cochineal shawl, but such jobs should be left to the dyer. We only recommend the above process of ours for white linens. By our advice, a number of friends employed it in their families, and are delighted with it.

WASHING SILVER.—In the *Telegraph* of 31st January, I observed an article headed "Washing Dishes," &c., recommending a good suds for washing silver. Some thirty years since I was informed by a proprietor of one of the largest and oldest silver establishments in the city of Philadelphia, that "housekeepers ruined their silver by washing it in soap suds; it makes it look like pewter; never put a particle of soap about your silver, then it will retain its original lustre; when it wants polishing take a piece of soft leather and whiting, and rub it hard." I had formerly seen silver washed in water with the addition of a little soap, and rinsed in clear water.

I adhered strictly to his advice, and found a great difference in the appearance of the silver.—*A Housekeeper, in the Germantown Telegraph.*

TO CEMENT BROKEN CHINA.—Mix some oyster-shell powder with the white of a fresh egg, to the thickness of white paint; lay it on thick at the two edges and join them as exact and quick as possible; then put it before the fire till the china is quite hot, and it will cement in about two minutes. Pour boiling water into it directly, wipe it dry, scrape it clean on both sides with a penknife, and it will appear only as a crack. Mix no more than you can use for one or two things at a time; for if the cement grows hard, it will be spoiled. The powder may be bought at the apothecaries'; but it is best prepared at home, which is done as follows: Choose a large, deep oyster-shell; put it in the middle of a clear fire till red-hot; then take it out and scrape away the black parts; pound the rest in a mortar as fine as possible; sift and beat it a second time, till quite smooth and fine.

Editor's Table.

A Backward Season.—We have not known vegetation so backward as it has been for the last two or three months, since 1817, in this State. This paragraph is written the 9th of June, and the weather seems more like a little extra sunshine in winter, than like summer. Corn and other tender plants cannot grow and prosper until the temperature of the soil and atmosphere is much higher than at present. If wheat escapes the fly, mis-called weevil, there is a promise of a fair crop in Western New York. Some fields have suffered badly from spring freezing and thawing, and others have been badly injured by the Hessian fly; but the area sown last autumn was unusually, if not unprecedentedly large, so partial failures will not reduce the average.

The weather has been uncommonly cold in western, central, and southern Europe the past spring—so much so as to affect the crops at the approaching harvest. So late as the 27th of April, the frost destroyed tomatoes and other tender plants near Naples, in Italy. Not only the fruit but the branches of olive trees were killed near Nismes.

A low summer temperature in England, Scotland, and all east of Great Britain, on the Continent, affects injuriously the aggregate of cereals grown and matured under such adverse circumstances, for there is no surplus of solar heat in that latitude and climate. A reduction of heat tells at once on the harvest and the bread of Europe.

The State Agricultural Exhibition.—The fifteenth annual exhibition of the New York State Agricultural Society, which will be held at Elmira, Chemung Co., next October, promises to be one of the best ever yet witnessed. Spacious grounds have been selected, and will be arranged in the most convenient manner for the satisfactory exhibition of stock and articles. We have seen a list of the premiums to be awarded, and remark that it has been very much enlarged. Persons intending to compete, must give notice to the Secretary without delay.

Rhode Island Horticultural Society.—This Society will hold its June exhibition in Providence, on the 19th and 20th inst. The former exhibitions have been valuable and highly interesting. They invite those interested in this subject elsewhere to unite with them. Any communications or inquiries may be addressed to the Secretary, Mr. J. F. Driscoll, at Providence.

Chufas, or Earth Almonds.—We learn from the Washington *Union* that there has been procured from the south of Spain by the Agricultural division of the Patent Office, a barrel of chufas for public distribution. This is a new esculent in this country, known to botanists under the name of *Cyperus esculentus*. It grows spontaneously in the light humid soils of Spain, and is cultivated in Germany and the south of France. It grows to a height of about three feet, on a triangular stalk or rush, with a spreading head, bearing yellow flowers, which are succeeded by long ears. The roots are fibrous, of a reddish color, bearing small tubes about the size of a common bean, and are known by the Spaniards by the name of "chufas." If planted in May or June, they are ready to be harvested in October. They resemble in taste a delicious chestnut or cocoa-nut, and like them, may be eaten raw or cooked. They are chiefly employed in making an orgeat (*orchata de chufas*,) a delightful, refreshing drink, much used in Spain, Cuba, and other hot climates where it is known. When mashed to a flour, which is white, sweet, and very agreeable to the taste, it imparts to water the color and richness of milk. At Almacero and Alborayo considerable attention is devoted to the cultivation of this plant, eight acres of land yielding a profit of $3,500 in five months.

Milk Sickness.—Dr. Hall, in his Journal of Health, states that milk sickness is unknown in places where cows are well fed. Such cows, he asserts, never give *milk sickness*. He has revelled in the use of the most luscious milk for weeks in perfect fearlessness of this sickness, while several died of it on the next farm.

Some persons have attributed this disease to a vegetable which the cows eat, but he tells our western farmers that if they feed their cows well, they will never be troubled with the milk sickness.

Dr. Hall might as well ascribe the cow pox or ague and fever to a want of food, as the malady called milk sickness. We have seen it on the Wabash bottoms, in southern Indiana and Illinois, where the supply of grass and other forage was most abundant.

Vienna Plaster.—The reader's attention is called to the analyses of three different kinds of plaster, which may be found in our advertising columns, made by Dr. Chilton, of New York. It will be seen that Vienna plaster contains about ten per cent. more sulphate of lime than Onondaga plaster, and not far from forty more than Cayuga plaster. This fertilizer differs from common limestone mainly in the quantity of sulphuric acid, or oil of vitriol, which it contains; and we have no doubt that in most cases it is the soluble and available sulphur in gypsum which renders it so useful to clover, peas, and other plants rich in sulphur. In all cases where lime answers as well as plaster, there is a lack of lime in the soil and no lack of available sulphur, or sulphuric acid. This acid is generally developed more or less by tillage alone, as it decomposes iron pyrites (sulphuret of iron) literally by burning the sulphur in condensed oxygen, (condensed in the stirred and porous soil,) forming an acid. If no lime nor other alkaline substance be present, this acid unites with iron and alumina, forming the sulphate of iron and sulphate of alumina. In all such cases liming is better than plastering. Where one uses plaster at all it is wise to sow the best in the market.

Notices of New Books, Periodicals, &c.

The Progressive Farmer. By Prof. Nash. C. M. Saxton & Co, Publishers.

We have already commended this publication to our readers in a former number. It is a work of solid merit, and deserves all the popularity which it enjoys.

INTERMEDIATE GEOGRAPHY. For sale by D. M. DEWEY, Rochester, N. Y.

We have received from the publishers, D. APPLETON & Co., the second volume, or an "Intermediate Geography," being part of a complete series of School Geographies, by S. S. CORNELL. We have already had occasion to notice and commend both the plan and the execution of this School Book.

A COMMON PLACE BOOK of Thoughts, Memories, and Fancies; Original and Selected: by Mrs. JAMESON: D. APPLETON & Co., Publishers.

The reputation of Mrs. J. is alone sufficient to command attention to this very readable *melange* of Thoughts, Memories, and Fancies, which she has given to the public. Whoever buys the book will get the worth of his money.

HYDROPATHIC COOK BOOK. By R. T. TRALL, M. D. New York: FOWLER & WELLS, Publishers.

There is a great deal of useful information relating to food, alimentary principles, and health in this book. It should be in the hands of everybody, for all are interested in what they eat and drink, and many poison themselves from sheer ignorance and carelessness.

WARING'S ELEMENTS OF AGRICULTURE. New York: D. APPLETON & Co., Publishers.

This is designed as a text book to be used in schools, having questions at the bottom of each page to test the thoroughness with which the pupil has studied his lesson. The work appears well adapted to the wants of beginners, so far as we have examined it.

THE PRACTICAL LAND-DRAINER. By Y. B. MUNN, Landscape Gardener. New York: C. M. SAXTON & Co., Publishers.

This is really a valuable compilation, in which a large amount of professional information is methodically arranged and condensed. Every farmer needs a work of this kind, and when books are so cheap as they now are, he will lose money not to purchase this manual on Land-Draining.

THE PRACTICAL FRUIT, FLOWER, AND VEGETABLE GARDENERS' COMPANION, with a Calendar. By PATRICK NEILL, LL. D., F. R. S. E., Secretary to the Royal Caledonian Horticultural Society. Adapted to the United States from the fourth edition. Revised and improved by the author. Edited by G. EMERSON, M. D., with notes and additions by R. G. PARDEE, etc., etc.

This book would be more attractive if its title were not like a dog with three long tails, each growing out of the lengthened extremity of the other. Cut off two of these, Mr. SAXTON, and *cur*-tail the other, and then a really valuable work by a highly educated Scotchman will find plenty of readers.

Inquiries and Answers.

NOTICES TO CORRESPONDENTS.—MR. W. M. CORBET, of Corsica, Pa., asks:—1st. "For what crops is bone-dust most valuable?"

Answer.—In England, where it has been longest and most extensively in use, it is thought to benefit the turnip crop more than any other; it is, however, valuable for corn and other grain, for meadows and pastures, and all other agricultural plants.

2d. "How does it compare with lime, in value, where lime can be easily and cheaply obtained?"

Answer.—The two do not admit of comparison; for the reason that no amount of lime can ever serve as a substitute for the phosphoric acid in bones, in the economy of nature.

3d. "How much is a dressing for an acre of land?"

Answer.—From five to fifteen bushels; although some have used no more than three bushels per acre, and others twenty—differing as widely as men do in the application of other manure.

4th. "What is the cost of mills, where can they be obtained, and what the process of manufacture?"

Answer.—A good bone-mill costs from $150 to $250; and but few are manufactured, for the demand is small. In most farming districts the supply of bones is small, and it prevents the purchase of mills. Did the manufacturers advertise them in the GENESEE FARMER, they would sell more; but we cannot advertise them for nothing.

WILL you, or some one of your correspondents, through the medium of the FARMER, answer the following questions: 1st. What is the best method of destroying the weed known here as the Canadian thistle? 2d. What is the mode of cultivation, and what the use of the egg-plant? AN INQUIRER.

ADVERTISEMENTS,

To secure insertion in the FARMER, must be received as early as the 10th of the previous month, and be of such a character as to be of interest to farmers. TERMS—Two Dollars for every hundred words, each insertion, PAID IN ADVANCE.

HORSE POWERS, THRESHERS, EAGLE FAN MILLS.

ALLEN'S Improved Horse Power—it runs uncommonly easy, and does not require more than half the elevation at the forward end, of other powers.

THRESHERS—Both over and under shot, made in a superior manner.

EAGLE FAN MILLS—*The best and cheapest Grain and Seed Separator made.* The superiority of this Fan Mill consists,

First—In cleaning without a screen, by separating the impurities such as chess, cockle, smut, &c., by the blast alone, consequently saving the loss of the small sound kernels of wheat which must go through a screen.

Second—An arrangement by which a part of the sound and perfect grains are separated from the rest for seeding, leaving the balance in a good marketable condition, so that the farmer need sow only such grain as contains the germ of growth.

Third—Smaller seed, such as grass and clover seed, are cleaned in the most perfect manner.

Fourth—Fans built on this plan will clean grain, both in the first and second cleaning, faster and better than any others now in use.

Fifth—The cheapness and durability of its construction.

R. L. ALLEN,
June 1—2t 189 and 191 Water-st., New York.

MOWERS, REAPERS, &c.

KETCHUM'S One Horse Mower cuts three feet swath; Two Horse do. cuts four feet eight inches; Allen's Improved Mower; Hussey & McCormick's Reapers, Atkin's Reaper, with Self-Raker attached.

Emery's, Taplin's, Bogardus', Trimble's, and other Horse Powers.

A complete assortment of Agricultural and Horticultural Implements of all kinds; Field and Garden Seeds.

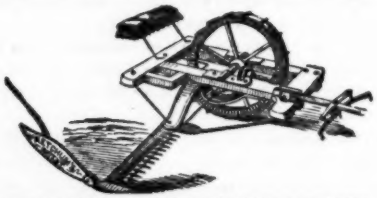
Guano, with Peruvian Government weight and brand marked on each bag; Improved Superphosphate of Lime, &c.

R. L. ALLEN,
June 1—2t 189 and 191 Water st., New York.

IMPORTANT TO FARMERS.

MONNY'S PATENT COMBINED MOWER AND REAAER. The undersigned are now manufacturing the above Machine, which they have great pleasure in offering to the farmers of Canada, and needs only be tried to be appreciated. Price, with two sets Knives, $130. We are also manufacturing Burrell's Reaper, $120; and Ketchum's Mower, two sets Knives, $110.

Newcastle, May, 1855—2t H. A. MOSSEY & CO.



KETCHUM'S PATENT MOWING MACHINE FOR 1855.

KETCHUM'S MOWER for 1855, with wrought iron frames and finger bars, improved guards, and pitman, knives of superior quality, the adjustable boxing to keep the gearing in its proper mash, a good, easy spring seat, and the substantial manner in which every part of the machines are made, makes them the most simple, durable, and perfect machine in the world.

The weight of the machine has been lessened, which, with the improvements made on them, makes their draft very much less, so that one span of horses can easily cut from ten to fifteen acres per day. We have a Reaper Attachment on an entire new principle which does not, in any manner affect the perfection of the Mower, for which fifteen dollars extra will be charged, or, if so ordered, the machine will be sent so that the attachment can be had thereafter. They are sold and warranted to be well made and capable of cutting from ten to fifteen acres of *any kind* of grass per day, whether *heavy or light, wet or dry, lodged or standing*, and do it as well as can be done by scythe. They will also cut the same amount of grain per day. The above warranty will be strictly adhered to by us, if directions for use are followed.

All letters of inquiry promptly answered, and orders filled same day as received.

☞ Price of Mower, $110—either wood or iron frame (both have iron finger bars and all the other improvements.)

HOWARD & CO., Manufacturers and Proprietors.

July 1—2t Buffalo, N. Y.

VIENNA PLASTER THE BEST FOR LAND.

I HAVE analyzed a specimen of "VIENNA PLASTER, OR GYPSUM," and also specimens of "CAYUGA" and "ONONDAGA PLASTER," and find them to yield respectively as follows:

VIENNA PLASTER.

SULPHATE OF LIME,	70 92
Carbonate of Lime,	4 45
Carbonate of Magnesia,	1 50
Alumina,	2.46
Silica,	1.84
Protoxide of Iron,	21
Water,	18.33
Loss,	29
	100.00

New York, March 19, 1854.

JAMES R. CHILTON, M. D., Chemist.

ONONDAGA PLASTER.

SULPHATE OF LIME,	63 20
Sulphuric of Lime,	1.01
Carbonate of Lime,	6.30
Carbonate of Magnesia,	1.60
Alumina,	2.80
Silica,	2.46
Water,	22.10
Loss,	24
	100.00

CAYUGA PLASTER.

SULPHATE OF LIME,	50.40
Sulphuret of Lime,	2.00
Carbonate of Lime,	18.00
Carbonate of Magnesia,	3 80
Alumina,	4.00
Silica,	4.40
Protoxide of Iron,	32
Water,	16.50
Loss,	48
	100.00

New York, April 2, 1852.

JAMES R. CHILTON, M. D., Chemist,

It appears from the above analysis that the "VIENNA PLASTER" is superior for land to that of the Cayuga or Onondaga, inasmuch as it contains the largest per centage of the "SULPHATE OF LIME," which is the most beneficial property in land Plaster.

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July 1—tf.

DRAINAGE AND SEWERAGE PIPE MACHINE.

CHARNOCK'S PATENT.

BY this Machine, Drainage and Sewerage Pipes of all descriptions, as well as perforated and other Bricks, Flooring Tiles &c., are molded with the greatest facility and precision.

A man and three boys can turn out from 5,000 to 10,000 feet of pipes per day, according to sizes; and if worked by horse, steam or water power, a proportionate increase will be obtained.

This Machine is in extensive operation in England, where, in addition to the testimony of numerous Tile Makers, as well as that of some of the first Machinists of the day, the following Prizes have been awarded to it:

By the Yorkshire Agricultural Society, at its annual meeting, 1845, as the first Tile Machine with a continuous motion,	£5 0 0
By the same Society, the following year, as the best Machine of the day,	10 0 0
By the Lancashire Agricultural Society, at its annual meeting, 1845,	Silver Medal.
By the Highland Agricultural Society, at its annual meeting in 1846, as the best Machine,	5 0 0

At the meeting of the New York State Agricultural Society, at Saratoga (1853), a Working Model of this Machine was awarded the SILVER MEDAL AND DIPLOMA; and at the Fall Exhibitions the same year of Lower and Upper Canada, held respectively at Montreal and Hamilton, the same Model was awarded a DIPLOMA FROM EACH SOCIETY. It was awarded the FIRST PRIZE AND DIPLOMA at the recent Exhibition in London, C. W.

The price of the Machine is £50 (half cash and remainder at six months), with five Dies for Pipes. Brick and other Dies at a moderate charge.

☞ THE PATENTEE GUARANTEES THE EFFECTIVE WORKING OF THE MACHINE. ☜

☞ All orders to be addressed to

JOHN H. CHARNOCK,

Drainage Engineer, Hamilton, C. W., the Patentee.

January 1, 1855.—tf

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June 1—2t.

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No. 2. Descriptive Catalogue of Ornamental Trees, Shrubs, Roses, &c. &c., for 1854-5.

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October 1, 1854.—tf

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A. LONGETT

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April—3t JAMES P. FOGG.

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100	do	Orchard Grass seed,
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100	do	Early June Peas,
200	do	Early Kent Peas,
500	do	Field Peas, best quality,
300	do	Fife Wheat (bald,)
200	do	Club do do
150	do	Top Onions,
50	do	English Potato Onions,
100	do	Best Early Potatoes,

And also a full assortment of the best and purest Agricultural and Garden seeds ever offered in this market.

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March, 1855.—tf. WM. H. LOOMIS.

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April 1—tf

DURHAM BULL FOR SALE.

THE subscriber has a yearling Durham Bull, pure bred, good pedigree, for sale.

Nelson, May 9, 1855. P. FISHER.

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